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ABSTRACT

This collection of 22 papers examines various word processing (WP) technologies, systems, and applications. The first five papers by C. Briggs, C. Taylor, G. McLean, D. Remsen, and C. Norris discuss WP applications in the Army, a WP system for an insurance firm, the organization of the International Word Processing Association, WP fundamentals, and emerging information processing technology. The next five papers by D. Bentley, R. Baxter, K. McManus, B. Follett, and T. Helweg examine WP presentations to senior management, communications technology in WP, training personnel in machine dictation, interfacing WP equipment with computer output microfilm devices, and current WP storage technology. Next, papers by E. Scott, J. Duffy, D. Cheny, B. Boucher, and M. Ruprecht review the Department of Transportation's Automated Office System, public relations and the WP manager, successful implementation of a WP system, the addition of photocomposition capabilities, and WP productivity measures. The final set of papers by L. O'Keeffe, J. Carlisle, R. Baxter, M. Balmer, A. Mattox and J. McCollum, and K. Wagoner considers a project approach to integrating WP systems, office automation and management effectiveness, the assessment of WP technology, the information manager as change agent, career paths in information processing, and emerging trends in WP education. Sample forms and illustrations are provided in many of the papers. (KL)

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# PAPERS & PROCEEDINGS

Syntopican VIII
June 23 - 26, 1980
Minneapolis Convention Center
"Moving Information - Concepts In Transition"

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Syntopican VIII, "Moving Information - Concepts In Transition," precedes an age of information management. This age will not be measured in terms of days or years but in terms of increasing utilization of practicable, cost effective information processing systems — those that have emerged from the state-of-the-art technology.

IWP created Syntopican VIII's program to provide members and visitors the choicest opportunities of the information/word processing industry. Certain sessions were presented so attendants could grasp an overview of the information age. One session introduced the concepts and benefits of information/word processing. Fundamentals were discussed in sessions focusing on selecting equipment, financial planning, training dictation users, and choosing centralized or decentralized wp operations. Speakers guided attendants through the steps vital to the success of wp: conducting feasibility studies, making presentations to top management and implementing wp/as procedures and work measurement.

The conference also offered attendants the opportunity to investigate specific topics and collect practical knowledge in areas of special interest. During the session entitled "Moving Information — Concepts In Transition," industry experts identified and discussed current information processing trends and the subsequent effect in the office. Voice processing, file architecture and storage technology were also examined during individual sessions. All in all, conference attendants learned more about assessing wp and automated office technology: once applied, the techniques will bring the office of the future closer to reality.

Topics in the "Human Resources" category were presented for the first time. Through the development of wp, the importance of the interpersonal relationship between manager and employee has augmented. Session topics ranging from "Office Landscaping — Designing for People" to "The Information Manager as a Catalyst" helped some attendants acquire new and valuable "people" skills — others were busy discovering ways to enhance the skills already developed on-the-job.

Finally, a "Special Applications" category gathered speakers from various industries to share their expertise. Two popular wp user groups — insurance companies and law offices — were represented in sessions where the hot topics were creating and implementing training programs and consulting.

This second edition of *Papers & Proceedings* capsulizes the substance of Syntopican VIII. Each paper appears exactly as submitted to IWP and in the order in which it was listed in the conference program. The complete publication features 22 papers out of a possible 43, since some speakers were unable to submit a paper. The entire program is recreated in the index, complete with an alphabetical listing of all speakers, session titles and general topics. (See back of book.)

Since IWP's inception in 1972, the association has considered service to its members to be its primary goal. Closely related to our primary goal is IWP's role as a clearinghouse of information for the information/word processing industry. One of the most valuable ways this purpose has been served is through four annual conferences which provide a common ground for wp professionals to meet, learn about new trends in the industry and share ideas and experiences. *Papers & Proceedings* takes our role as information clearinghouse even further by presenting the session papers from our largest conference, Syntopican.

# Keynote Address

Brigadier General Charles F. Briggs
Deputy Commander for Administrative Systems
Department of the Army

*Tuesday Morning*
*June 24, 1980*

## WORDS, WORDS, WORDS

THANK YOU FOR THE KIND INTRODUCTION.

I AM HUMBLED TO STAND BEFORE A GROUP OF PEOPLE LIKE YOURSELVES AND TO HAVE THE OPPORTUNITY TO STIMULATE YOUR THINKING THROUGH THE DELIBERATIONS OF THE NEXT THREE DAYS. WORD PROCESSING IS A SUBJECT I AM REASONABLY SURE *YOU* ARE BETTER QUALIFIED TO ADDRESS THAN I. TODAY I STAND BEFORE YOU AS A *USER* OF TECHNOLOGIES IN ADMINISTRATION. I AM NOT OFFICIALLY REPRESENTING ANY POSITION OF THE DEPARTMENT OF DEFENSE, SIMPLY RELATING OUR EXPERIENCES, OUR PLANS, AND MY OWN EVALUATION OF WHERE WORD PROCESSING HAS BEEN AND WHERE IT IS GOING.

IT HAS OFTEN BEEN SAID THAT THE GENERALS GIVE THE ORDERS, BUT THAT IT'S THE SERGEANTS WHO UNDERSTAND AND RUN THE ARMY -- AN UNDENIABLY TRUE STATEMENT, AS ANY YOUNG OFFICER WOULD QUICKLY TELL YOU. THE SERGEANTS ARE BUSY TODAY RUNNING THE ARMY, SO THEY SENT ME HERE TODAY TO TELL YOU SOMETHING ABOUT THE ARMY EXPERIENCE IN WORD PROCESSING.

THE ARMY ESTABLISHMENT IS A VERY TRADITIONAL ONE AND IS CAUTIOUS, BY ITS VERY NATURE, IN ACCEPTING NEW IDEAS. I ALSO FIND OUR ARMY IN AN ENVIRONMENT THAT HAS CHANGED OUR CONCEPT OF TIME -- TIME THAT HAS BEEN DRASTICALLY REDUCED BY THE ADVENT OF WEAPONS SYSTEMS THAT EXTEND WARS ACROSS CONTINENTS IN AN INSTANT.

AND SO MY MISSION AS AN ADMINISTRATOR IS A CRUCIAL ONE, ONE THAT CHARGES ME WITH ESTABLISHING QUICKLY ACCESSED INFORMATION BASES AND EFFICIENT ADMINISTRATIVE SUPPORT CAPABILITIES WITH THE MINIMUM SLICE OF THE PERSONNEL RESOURCES ALLOCATED TO ME. IN THE ARMY, WE CALL THIS THE "TOOTH-TO-TAIL" RATIO. WE ARE EXPLORING ANY TECHNOLOGY POSSIBLE TO PROVIDE THE MEANS FOR FREEING EFFECTIVE MANPOWER. OUR PRIMARY MISSION IS DEFENSE, NOT PAPER PUSHING. THE MORE PEOPLE NEEDED TO SUPPORT A SOLDIER, THE LESS EFFECTIVE AND FEWER COMBAT SOLDIERS WE HAVE. THE SAME IS TRUE, OF COURSE, IN THE BUSINESS WORLD.

PRODUCTIVITY DROPS WHEN THE NUMBER OF SUPPORT WORKERS CLIMBS.

I AM PROUD TO SAY THAT THE GOVERNMENT AS A WHOLE RECOGNIZES THE VALUE OF WORD PROCESSING TECHNOLOGY, AND USES IT ON AN ENORMOUS SCALE.

LET ME ILLUSTRATE WITH A FEW EXAMPLES. THE ARMY ALONE HAS ABOUT 10,000 PIECES OF WORD PROCESSING EQUIPMENT SCATTERED THROUGHOUT THE WORLD. AND NOT JUST IN PLACES WHERE IT IS EASY TO PLUG A CRT INTO A WALL. WE HAVE THEM ON HILLTOPS IN KOREA, IN WORLD WAR II BARRACKS BUILDINGS, IN THE DUST OF FT. HOOD, TEXAS, IN SMALL CAMPS IN GERMANY WHERE THE POWER SUPPLIES ARE LIKE NOTHING YOU'VE EVER HEARD OF, AT FOUR THOUSAND FEET ABOVE SEA LEVEL WHERE THE STATIC ELECTRICITY IS SO HIGH THAT EVERY GRAIN OF DUST MAKES A BEE LINE FOR ANY MAGNETIC SURFACE, AT FT. WAINWRIGHT, ALASKA, AT WHITE SANDS PROVING GROUND, AND IN SAUDI ARABIA. WE ARE THE PEOPLE WHO CAN TALK TO YOU ABOUT SCRAPING MOLD OFF MAGNETIC CARDS IN THE JUNGLES OF PANAMA, AND DROPPING MACHINES BY PARACHUTE AT FT. BRAGG. NOW I SUBMIT TO YOU THAT THESE ACTIVITIES INDICATE A PRETTY EXTENSIVE COMMITMENT.

AND THAT ISN'T ALL. IN 1975 AND 1976 THE ARMY RAN WORD PROCESSING MANAGEMENT SEMINARS FOR 1000 OFFICERS, ANALYST AND MANAGERS. NOT OPERATOR OR SUPERVISOR LEVEL COURSES, BUT THREE-DAY MANAGEMENT COURSES. PERHAPS ANOTHER THOUSAND OR SO HAVE HAD OUTSIDE TRAINING FROM VENDOR AND CONSULTANT SEMINARS.

THE AIR FORCE AND NAVY ARE ALSO VERY STRONG SUPPORTERS OF WORD PROCESSING. THE AIR FORCE CAN TELL YOU HOW TO DEFROST WORD PROCESSORS SHIPPED IN AN AIR CARGO HOLD TO ANTARCTICA, AND THE NAVY CAN TELL YOU ABOUT TRANSFERRING COMPANY MAINTENANCE MEN BY BOSUN'S CHAIR FROM SHIP TO SHIP IN CHOPPY SEAS. I HAVE HEARD THAT IT'S QUITE AN ENTERTAINING EXPERIENCE.

SOMETIMES I THINK WORD PROCESSING SPECIALISTS ASK TOO MUCH OF MANAGEMENT. WE DEPEND UPON YOU, THE EXPERTS, TO DESIGN AND IMPLEMENT THESE SYSTEMS WHILE OUR OWN ATTENTION, BY NECESSITY, MUST BE FOCUSED

ELSEWHERE. I AM WILLING TO GIVE UP SOME OF THE POTENTIAL ECONOMIES IN THE CERTAINTY THAT A NEW WORD PROCESSING SYSTEM WILL SURVIVE AND FLOURISH WHEN I CAN'T BE TENDING IT. WILLIAM PALEY, FOUNDER OF CBS, SAID ONCE THAT HIS MOTHER HAD ONLY GIVEN HIM ONE PIECE OF ADVICE ABOUT RUNNING A BUSINESS: "DON'T DO ANYTHING YOURSELF THAT OTHERS CAN DO BETTER. DO WHAT YOU DO BEST." I AM A SOLDIER, AND I HOPE, A GOOD ONE. I HAVE A CHOICE BETWEEN USING MY ENERGIES AS A SOLDIER AND MANAGER, OR IN ATTEMPTING TO BE A RATHER AMATUERISH WORD PROCESSING SPECIALIST. I DEPEND UPON MY SPECIALISTS TO DESIGN, IMPLEMENT AND MONITOR THESE SYSTEMS WHILE MY ATTENTIONS MUST, BY NECESSITY, BE FOCUSED TOWARD MANAGEMENT. THE SAME CHOICE IS OPEN TO YOUR OWN TOP MANAGERS, AND YOU KNOW WHAT THEIR CHOICE MUST BE.

LET ME NOW RELATE MY VERSION OF THE YESTERDAY OF WORD PROCESSING AS A MANAGER, A USER, SEES IT. I THINK IT IS RADICALLY DIFFERENT FROM ANYTHING FOUND IN THE WP TEXTBOOKS. 11

WORD PROCESSING EXISTED TO BRING THE POWER OF AUTOMATED LABOR-SAVING EQUIPMENT INTO THE OFFICE. EARLY USES WERE DESIGNED TO SOLVE ONLY THE TYPING PROBLEMS. AND SO, WORD PROCESSING GREW AS A SINGLE ENTITY, WITH NO CONSIDERATION OF THIS TECHNOLOGY AS A FOCAL POINT OF AN OVERALL INTEGRATED SYSTEM. THIS IS OBVIOUSLY NOT TRUE TODAY. TO ILLUSTRATE, ALL I HAVE TO DO IS POINT OUT THAT MORE THAN HALF OF YOUR EQUIPMENT SESSIONS AT THIS SYNTOPICAN HAVE LITTLE OR NOTHING TO DO WITH THE BASIC BUSINESS OF TYPING LETTERS. INSTEAD, I SEE SUCH SUBJECTS AS PHOTOCOMPOSITION, MICROGRAPHICS, ELECTRONIC MAIL, DATA PROCESSING -- NEED I GO ON?

ADVANCES IN ELECTRONICS MADE IT POSSIBLE TO BRING THE POWER OF A DATA PROCESSING TYPE TECHNOLOGY AND PLACE IT IN THE HANDS OF THE USER AT A USER-ORIENTED LEVEL -- MUCH LESS QUEUEING, FEWER DELAYS, NO BATCH PROCESSING, LESS REGIMENTATION, NO REAL REQUIREMENT FOR MASS STANDARDIZATION. THE OFFICE IS NOT TURNED INSIDE OUT TO ACCOMMODATE THE MACHINE. ORDINARY PEOPLE, DOING THEIR NORMAL TASKS, CAN USE THE

MACHINE WITH PROFIT AND WITHOUT AN INTOLERABLE AMOUNT OF TRAINING. MORE CAPABLE PEOPLE CAN DO AMAZING THINGS WITH THIS TECHNOLOGICAL ADVANTAGE, A LEVER -- TO LIFT THE PAPERWORK. THE SUCCESS OF WORD PROCESSING HAS BEEN THE TRIUMPH OF RELATIVELY SIMPLE, HUMAN ENGINEERED, EASY TO USE, DEDICATED MACHINES. THE TOOL WAS SHAPED FOR THE TASK, AND NOT THE OFFICE REORGANIZED TO TAKE ADVANTAGE OF THE TOOL.

WHEN WORD PROCESSING STARTED OUT, THE EQUIPMENT WAS EXPENSIVE. NOT SO COSTLY AS A CENTRALIZED COMPUTER SYSTEM, BUT NONETHELESS, EXPENSIVE. BECAUSE OF THIS COST, HIGHLY SPECIALIZED WORD PROCESSING CENTERS WERE DEVELOPED. IN FACT, MUCH OF THE THEORY WAS BASED UPON THE SAME CONCEPT AS THAT OF THE CENTRALIZED DATA ENTRY AND KEYPUNCH CENTERS USED IN DATA PROCESSING. FOR A WHILE, CENTERS GREW LARGER AND LARGER. THE LARGEST I HAVE HEARD OF IS THAT OF A MAIL ORDER COMPANY WITH OVER A HUNDRED MACHINES IN ONE CENTER. THAT PHASE ONLY LASTED A FEW YEARS, AND REASON TRIUMPHED. CLUSTERS AND DECENTRALIZED USE BECAME MORE POPULAR. YOU CAN JUST CENTRALIZE SO MUCH BEFORE YOU BECOME UNREASONABLY DISTANT FROM THE USER AND INSENSITIVE TO THE USER'S PRIORITIES.

THERE WILL CONTINUE TO BE A PLACE FOR WORD PROCESSING CENTERS IN PRODUCING LARGE QUANTITIES OF STANDARDIZED MATERIALS, LENGTHY TEXT AND DOING OTHER SPECIALIZED JOBS. BUT THE TREND IN GENERAL OFFICE TYPING WILL CONTINUE TO MOVE AWAY FROM CENTERS AS EQUIPMENT GETS CHEAPER, AND AS TECHNIQUES SUCH AS OPTICAL CHARACTER RECOGNITION AND COMMUNICATIONS BECOME MORE USEFUL. FOR MANY OTHER APPLICATIONS, HOWEVER, CENTERS AND CLUSTERS WILL CONTINUE TO EXIST, IF ONLY TO HOUSE THE SPECIAL TALENTS AND EQUIPMENT NEEDED TO INTERFACE WITH PHOTOCOMPOSITION AND OTHER SUCH SYSTEMS.

WHICH BRINGS ME TO TODAY -- WHERE WORD PROCESSING IS, AS A VITAL KEY IN INTEGRATED SYSTEMS.

ONE TREND IS UNMISTAKEABLE. THE TREND TO INTERFACE OR LINK TOGETHER SEPARATE SYSTEMS AND OPERATIONS. TO MISQUOTE JOHN DONNE, WHO ISN'T HERE TO DEFEND HIMSELF, "NO TECHNOLOGY IS AN ISLAND ENTIRE IN ITSELF." THE MOVEMENT TO INTERFACE WORD PROCESSING WITH PHOTOCOMPOSITION SYSTEMS, FOR EXAMPLE, IS NOT ONLY WELL ADVANCED, I WOULD CALL IT AN ACCOMPLISHED FACT. BUT AT THIS POINT, I WOULD DISTINGUISH THE RIGHT WAY, THE WRONG WAY, AND THE ARMY WAY. IT IS OBVIOUSLY SILLY TO REKEYBOARD ALL OF MY TYPEWRITTEN DOCUMENTS INTO A PHOTOCOMPOSER AT GREAT COST AND LOSS OF TIME, WHILE MAKING NEW ERRORS. IT IS OBVIOUSLY MUCH CHEAPER TO HAVE THE WORD PROCESSING AND PHOTOCOMPOSITION ON ONE MACHINE.

BUT THAT IS NOT THE ARMY WAY. WE HAVE NOT FAILED TO RECOGNIZE A VERY IMPORTANT STEP BETWEEN TYPING AND PHOTOCOMPOSITION OUTPUT. THAT STEP IS EDITORIAL ROUTINE. WE ARE DEVELOPING AUTOMATED SYSTEMS TO AID IN THE EDITORIAL REVIEW OF ALL WIDELY PUBLISHED ARMY DOCUMENTS, AND SEE A DEFINITE LINK BETWEEN CREATING THE DOCUMENT ON A WORD PROCESSOR, REVIEWING IT FOR READABILITY AND PRODUCING A PHOTOCOMPOSED PAGE.

YET WE CHOOSE TO MAINTAIN INTEGRITY OF EACH PHASE OF THE SYSTEM. WE PREFER, WE DESIRE, WE ARE EARNESTLY PURSUING A SEPARATION OF SYSTEMS, A PLACE WHERE ONE BEGINS AND ANOTHER ENDS. IT IS A SEPARATION WHICH MINIMIZES TRAINING, SIMPLIFIES MAINTENANCE AND PROCEDURES, AND CONFINES LOSSES IN CASE OF DISASTER. IF YOU THINK WE ARE THROWING AWAY PERFECTLY GOOD OPPORTUNITIES FOR COST SAVINGS BECAUSE OUR MANAGERS ARE TIMID, I SHOULD TELL YOU THAT WE HAVE ABOUT 100 MINICOMPUTER-BASED WORD PROCESSING SYSTEMS WHICH ARE OPERATED AND MANAGED WITHOUT THE ATTENTION OF HIGHLY TRAINED DATA PROCESSING PERSONNEL. WE HAVE HAD SYSTEMS CRASH, AND CRASH HARD. THE MOST OBVIOUS AND EASILY IDENTIFIABLE CAUSE OF THOSE FAILURES WAS EXCESSIVELY COMPLEX SYSTEMS, WHICH REQUIRED VERY HIGH, DIFFICULT TO OBTAIN OPERATOR SKILLS, AND MADE IT DIFFICULT TO DIAGNOSE AND CORRECT PROBLEMS.

PHOTOCOMPOSITION, MICROGRAPHICS, DATA PROCESSING: THE LIST OF TECHNOLOGIES WHICH ARE INTERFACING WITH WORD PROCESSING IS GROWING

LONGER. BUT THESE ARE BASICALLY MACHINE SYSTEMS TO BE MATCHED UP. THERE IS ANOTHER WAY TO LOOK AT THE INTEGRATION OF SYSTEMS.

THERE IS A CYCLE OF INFORMATION MANAGEMENT WHICH OCCURS IN EVERY OFFICE, EVERY DATA HANDLING ACTIVITY. ALL DOCUMENTS, ALL ITEMS OF INFORMATION FOLLOW A SIMILAR SET OF STEPS IN THEIR LIFE CYCLE. THESE STEPS CONSIST OF INPUT, PROCESSING, OUTPUT, DISTRIBUTION AND STORAGE.

THE INPUT STAGE OF COURSE PREPARES DATA FOR THE PROCESSOR -- WHETHER IT IS A COMPUTER, A MAN OR WOMAN WHO REVIEWS CASES, OR A MANAGER MAKING A DECISION.

AT THE PROCESS STAGE, THE RAW DATA IS OBVIOUSLY MASSAGED IN SOME FASHION OR MANNER TO OBTAIN USEABLE INFORMATION. DATA IS SIFTED BY CLERK, ANALYST OR MANAGER, MAYBE EVEN A MACHINE.

AT THE OUTPUT STAGE, THE FINISHED PRODUCT IS PRODUCED IN SOME ACCEPTABLE MANNER. A DECISION, A FORM, A TYPED DOCUMENT OR PRINTOUT.

IT IS THEN DISTRIBUTED. WE ARE TALKING HERE OF ANYTHING FROM A VERBAL ORDER TO MAIL, INTERNAL CORRESPONDENCE, OR FILE CABINETS.

AND FINALLY, STORAGE. STORAGE GOES HAND IN HAND WITH RETRIEVAL, AND SO MAY ENTER OR REENTER THE SYSTEM SEVERAL TIMES DURING THE DOCUMENT'S LIFE CYCLE. THE USUAL METHOD OF STORAGE IS PAPER -- CABINETS AND CABINETS FULL OF PAPER FILES. WHILE SOME PAPER IS A NECESSITY, EFFORT SHOULD BE MADE TO DECREASE THIS VOLUME. DID YOU KNOW THAT THE MANUFACTURE OF PAPER IS THE SECOND MOST ENERGY-INTENSIVE JOB IN INDUSTRY, SECOND ONLY TO THE PRODUCTION OF ALUMINUM? AS THE COST OF ENERGY INCREASES, THE COST OF PAPER WILL INCREASE TREMENDOUSLY. USING MAGNETIC DISC OR TAPE STORAGE, FOR EXAMPLE, IS AN OBVIOUS ALTERNATIVE. STORED DATA MAY BE REINTRODUCED INTO THE CYCLE IF IT IS COMPATIBLE WITH THE ORIGINAL INPUT FORMAT AND MEDIUM. BUT, THERE ARE RISKS IN THIS TYPE OF STORAGE. MASSES OF ELECTRONICALLY STORED DEFENSE DATA COULD BE WIPED OUT IN THE PENTAGON IF AN ELECTRO-MAGNETIC PULSE WERE GENERATED FROM A NUCLEAR EXPLOSION AS FAR AWAY AS BALTIMORE.

IN SUCH CASES, "PLASTIC", OR MICROFORM, BECOMES A MORE VIABLE METHOD OF INFORMATION STORAGE. THE ONE THING I HAVEN'T SEEN YET IS AN EFFECTIVE METHOD OF RETRIEVAL FROM PLASTIC BACK TO DIGITAL FORM. THAT DEVELOPMENT WILL TRULY MAKE PLASTIC A MORE PRACTICAL METHOD OF STORAGE.

LET'S LOOK AT WORD PROCESSING IN USER HISTORY AS SEEN IN THE FRAMEWORK OF THE DOCUMENT LIFE CYCLE.

IN THE LATE 50'S AND EARLY 60'S WE HAD AN INPUT PROBLEM. I'M NOT SAYING THAT THERE WERE NO OTHER PROBLEMS, BUT PROPORTIONATELY, INPUT WAS THE OVERWHELMING, GROTESQUELY TIME AND RESOURCE CONSUMING TASK. WE REORGANIZED OUR OFFICES, SYSTEMS ANALYZED THEM, DATA STANDARDIZED, KEYPUNCHED WHOLE FORESTS OF RECTANGULAR CARDS, AND FED THE DATA TO MACHINES WHICH SPIT THEM BACK OUT IN MINUTES. IN TYPING, STATISTICAL ANALYSIS, PHOTOCOMPOSITION, IT WAS ALL THE SAME -- ENDLESS HOURS OF KEYBOARDING FOR DATA ENTRY.

WORD PROCESSING WAS ONE OF A SERIES OF INNOVATIONS MADE IN MACHINE ASSISTED INPUT OPERATIONS AT THIS TIME. LET ME POINT OUT THAT KEY TO DISC SYSTEMS FOR COMPUTER OPERATIONS AND NEW METHODS OF COMPOSITION MACHINE ENTRY ALL EXPERIENCED A PERIOD OF GREAT CHANGE AND GROWTH IN THE SAME TIME PERIOD.

IN THE SEVENTIES, WORD PROCESSING AND ITS SISTER TECHNOLOGIES SPREAD WIDELY, CLEAR-CUT ANSWERS TO PAINFUL INPUT PROBLEMS. AND NOW IT WAS CLEAR, THAT ANOTHER PHASE IN THE CYCLE WAS CAUSING A DISPROPORTIONATE AMOUNT OF TROUBLE.

THE EARLY WORD PROCESSORS HAD TERRIBLE PROBLEMS OF OUTPUT. NOT ONLY DID THEY TYPE SLOWLY, BUT WHILE PRINTING, AN OPERATOR COULD NOT DO ANYTHING BUT FOLD HER HANDS AND WAIT. THERE WERE MANY CASES WHERE OPERATORS RAN TWO MACHINES AT ONCE IN THE PRINTING MODE. THIS WAS A PROBLEM, BUT THE RELIEF OF NOT HAND RETYPING THE WHOLE DOCUMENT WAS SO BLESSED THAT WE IGNORED THE INCONVENIENCES.

THE SAME PROBLEMS PLAGUED OTHER TYPES OF SYSTEMS. DATA PROCESSORS GOT FASTER, BUT HAD ENORMOUSLY COMPLICATED AND EXPENSIVE

PRINTERS. ALL KINDS OF SOLUTIONS WERE TRIED -- CHAIN PRINTERS, DOT MATRIX PRINTERS, INK JET PRINTERS. AND SOME BASIC SOLUTIONS APPEAR TO BE EMERGING. COMPUTER OUTPUT MICROFILM DEVICES FOR SOME APPLICATIONS, AND THE LASER PRINTER FOR OTHERS. MY EXPERTS TELL ME THAT THE LASER PRINTER WILL BE THE BASIC SOLUTION TO THE LAST TEN YEARS OF OUTPUT PROBLEMS.

LET ME NOTE HERE THAT WORD PROCESSING HAS BEEN AT THE CENTER OF THESE CHANGES. WHERE THE FIRST DECADE OF WORD PROCESSING WAS CONCERNED WITH INPUT AND EDITING PROBLEMS, THE NEXT FIVE YEARS WERE SPENT ON OUTPUT INTERFACES AND METHODS. WHY WAS WORD PROCESSING AT THE CENTER OF THESE ACTIVITIES? IF YOU SPENT HALF A MILLION DOLLARS FOR A COMPUTER SYSTEM, MUCH MORE ON SOFTWARE PROCEDURES AND PERSONNEL, AND REORGANIZED YOUR ENTIRE OFFICE AROUND THAT COMPUTER, YOU WOULD NOT BE TOO QUICK TO CHANGE OVER TO NEW, SOMEWHAT RISKY INNOVATIONS. WORD PROCESSING EQUIPMENT, WITH ITS RELATIVELY LOW COST CAN BE CHANGED QUICKLY AND EASILY TO MEET USER NEEDS. IT, THEREFORE, HAS BEEN AT THE CENTER OF THE GREATEST ACTIVITY.

WE NOW COME TO PROBLEMS OF DISTRIBUTION, THE ONLY AREA BASICALLY UNTOUCHED BY THE AUTOMATION OF THIS CYCLE. OH I KNOW THAT EVERY BUSINESS MAGAZINE IS FILLED WITH ADVERTISEMENTS ON "ELECTRONIC MAIL." THE ARMY IS VERY VERY CAUTIOUS ABOUT SPENDING MONEY AND BEFORE WE INVEST IN A NEW TECHNOLOGY, WE LIKE TO KNOW SOMETHING ABOUT IT. THE ADJUTANT GENERAL DID A YEAR-LONG STUDY ON ELECTRONIC MAIL, JUST AS HE HAD STUDIED WORD PROCESSING AND MINICOMPUTER INTERFACING BEFORE HE MADE AN ARMY-WIDE COMMITMENT TO THESE FIELDS.

WE DISCOVERED THAT MUCH OF THE USER ORIENTATION AND SOFTWARE OF ELECTRONIC MAIL IS STILL IN THE PROCESS OF DEVELOPMENT. MANY VENDORS ARE SELLING ELECTRONIC MAIL SYSTEMS WHICH ARE COMPLEX, DIFFICULT TO OPERATE AND REQUIRE EXTENSIVE TRAINING. AND THEY DON'T NECESSARILY HAVE TO BE. IT MAY BE POSSIBLE TO PUT A TERMINAL ON EVERYONE'S DESK, AND TO PASS MEMORANDA AROUND THE WORLD, BUT IN SOME

CASES, WE HAVE NOT FOUND IT PRACTICAL. SEVERAL SYSTEMS SHOW GREAT PROMISE, BUT MUCH DEVELOPMENT STILL NEEDS TO BE DONE. WHAT WE HAVE FOUND IS THAT THE INFORMATION INSIDE AN AGENCY OR COMPANY CAN BE DISTRIBUTED BY ELECTRONIC MAIL VERY EFFICIENTLY.

I USE A SYSTEM LIKE THIS EVERY DAY. IT'S THE ADJUTANT GENERAL'S OWN DISTRIBUTION SYSTEM. TERMINALS ARE LOCATED IN MY OWN OFFICE AND IN EACH MAJOR DIRECTORATE. ALL KEY PERSONNEL ARE LINKED TO EACH OTHER, TO THE WORD PROCESSING CENTER, AND TO A COMPUTER WHICH PROVIDES LIMITED DOCUMENT SUSPENSING, CALENDARING, BULLETIN BOARD AND OTHER SERVICES. IT HAS BEEN IN OPERATION IN VARIOUS EXPERIMENTAL MODES FOR ABOUT A YEAR NOW, AND AS AN INFORMATION DISTRIBUTION SYSTEM, HAS PROVEN MORE THAN SATISFACTORY. IT TOOK A GREAT DEAL OF PRODDING, THOUGH, TO GET AN OLD SOLDIER LIKE ME TO USE IT, AND I AM NOT THE ONLY "OLDER" MANAGER. BUT REMEMBER, THERE IS AN ENTIRE GENERATION OF MANAGERS COMING ALONG WHO ARE MORE THAN EAGER TO USE A KEYBOARD.

AND DOES THIS COMPLETE THE DOCUMENT CYCLE? NOT QUITE.

THE ESSENTIAL PROBLEM HAS ALWAYS BEEN INFORMATION: HOW TO TYPE IT, HOW TO DISTRIBUTE IT, HOW TO STORE AND RETRIEVE IT. ONCE THE INFORMATION IS PRODUCED IN MACHINE READABLE FORM BY A WORD PROCESSOR, WHY NOT USE THE POWER OF ANOTHER MACHINE TO STORE, INDEX AND ACCESS THAT DATA? THE MOST COMMON COMPLAINT OF MANAGERS AND DECISION MAKERS IS THAT FILES CANNOT BE FOUND AND INFORMATION IS NOT AVAILABLE. AFTER CAREFULLY SURVEYING THE ARMY STAFF WE HAVE FOUND THAT ACCESS TO INFORMATION IS OUR KEY PROBLEM, AFFECTING DECISIONS INVOLVING BILLIONS OF DOLLARS. WE HAVE MADE A FIRST ATTEMPT TO REMEDY THIS PROBLEM. IT IS A SIMPLE INDEX OF KEY PAPERS, DOCUMENTS AND INFORMATION SOURCES THROUGHOUT THE ENTIRE ARMY STAFF. THIS LAST ENHANCEMENT, I SUBMIT, WILL TRULY COMPLETE THE CYCLE.

THE TITLE OF THIS TALK IS WORDS, WORDS, WORDS: YESTERDAY, TODAY AND TOMORROW. YOU MAY RECOGNIZE PART OF THAT TITLE AS A QUOTE FROM SHAKESPEARE'S HAMLET. POLONIUS ASKS HAMLET WHAT HE IS READING, AND

HAMLET REPLIES, "WORDS, WORDS, WORDS." SHAKESPEARE MAKES IT CLEAR THAT WHILE HAMLET'S PUN WAS LITERALLY CORRECT, IT DIDN'T TELL THE WHOLE TRUTH. IN THE SAME SENSE, THIS IS TRUE OF THE WORD PROCESSING FIELD, AND OF YOUR OWN IMAGE OF YOURSELVES. YOU MAY THINK YOU ARE PROCESSING WORDS, BUT YOU ARE PROCESSING INFORMATION: YOU MAY THINK YOU ARE PRODUCING TYPING LESS EXPENSIVELY, BUT I BELIEVE YOU ARE THE VANGUARD OF A REVOLUTION IN THE OFFICE. THE WORD PROCESSING OF THE MTST IS NOTHING AT ALL LIKE THE WORD PROCESSING OF SYNTOPICAN VIII, WITH ITS OPTICAL CHARACTER READERS, DATA PROCESSING INTERFACES AND MULTIPLICITY OF FUNCTION. A GREAT MANY EXCITING THINGS WILL HAPPEN IN THE OFFICE IN THE NEXT FEW YEARS, AND WORD PROCESSING, WHATEVER IT WAS YESTERDAY, WHATEVER IT IS TODAY, AND WHATEVER IT WILL BE TOMMORROW, WILL OF COURSE, BE AT THE CENTER OF THOSE CHANGES.

AND WHAT OF TOMORROW? THE MICROPROCESSOR ADVANCES WHICH HAVE SO CHANGED ALL ELECTRONIC EQUIPMENT IN THE PAST FEW YEARS HAVE AGAIN ADVANCED THE STATE OF THE ART VERY SIGNIFICANTLY. MICROCOMPUTERS ARE SOLD BY THE TENS OF THOUSANDS AND BEGINNING TO APPEAR IN SMALL BUSINESS, IN GOVERNMENT OFFICES, AND EVEN IN THE HOME -- PERHAPS THE ULTIMATE IN TOTAL USER DECENTRALIZATION. MANY WORD PROCESSORS NOW HAVE EXTENSIVE STATISTICAL, MATHEMATICAL AND GRAPHIC PACKAGES.

MY EXPERTS TELL ME THAT VIDEO OR OPTICAL DISC MAY HOLD GREAT PROMISE AS A STORAGE AND RETRIEVAL MEDIUM AND MAY PROVIDE A METHOD TO OVERCOME THE RISKS OF ELECTRONICALLY STORED DATA AND BE MORE PRACTICAL THAN PLASTIC. I'M ALSO GOING TO KEEP AN EYE ON THE LASER PRINTER. NOT ONLY IS IT FAST, USES MACHINE INPUT AND COMMUNICATES, BUT THE NEW EQUIPMENT SOLVES, FOR THE FIRST TIME, THE PROBLEMS OF FORMS PRODUCTION, MULTIPLE FONT USE, AND THE FEEDING OF DIFFERENT SIZES AND TYPES OF PAPER. AT LEAST ONE MACHINE IS CAPABLE OF REPRODUCING GRAPHICS, SIGNATURES, LETTERHEADS AND MICROFILM.

I WISH I HAD A CRYSTAL BALL, BECAUSE I AM TRULY UNSURE OF WHAT MORE THE FUTURE WILL BRING. INFORMATION -- ITS AVAILABILITY, TRANSPORTABILITY AND SPEED OF ACCESS WILL BE EXTREMELY IMPORTANT. MANAGERS WILL BE FACED WITH THE REALIZATION THAT INFORMATION IS A RESOURCE, A VERY EXPENSIVE RESOURCE, WHICH WILL REQUIRE THE ULTIMATE IN MANAGEMENT.

BUT WHAT KIND OF PERSON WILL BE REQUIRED FOR SUCH A MONUMENTAL TASK? OUR OWN DIRECTOR OF MANAGEMENT HAS POSED THAT SAME QUESTION. MY BOSS, THE ADJUTANT GENERAL SAID THAT IT SHOULD BE A PERSON OF BOTH PROCEDURES AND ADMINISTRATION EXPERIENCE -- A RECORDS ADMINISTRATOR. THE CONTROLLER OFFERED ANOTHER CHOICE -- THAT OF AN INDIVIDUAL TRAINED IN FISCAL MATTERS AND ADP, BECAUSE, AFTER ALL, MONEY DOES DRIVE EVERYTHING. FINALLY, THE AUTOMATION MANAGER SAID WE WERE ALL WRONG. WHAT IS REALLY NEEDED IS A COMMUNICATIONS AND ADP PERSON, BECAUSE COMMUNICATIONS IS THE GLUE THAT WILL HOLD TOGETHER ALL THESE INFORMATION PROCESSING SYSTEMS.

THE ANSWER MAY WELL BE NONE OF THE ABOVE. WE ARE TALKING ABOUT A NEW DISCIPLINE EMERGING BEFORE OUR VERY EYES. IT WILL CALL UPON A COMBINATION OF THE MANY ADMINISTRATIVE PROFESSIONS WE RECOGNIZE TODAY. THE ONLY CERTAINTY IS THAT WE, AS MANAGERS, MUST FACE THE CHALLENGE OF MANAGING THE INFORMATION WE REQUIRE AS A MARKETABLE RESOURCE. THE PERSON WHO WILL MANAGE THIS INFORMATION MUST LOOK BEYOND THE LITERAL MEANING AND FUNCTION OF INDIVIDUAL OFFICE TASKS TO THE FAR BROADER OBJECTIVES TO BE WON.

HAMLET WOULD HAVE BEEN MORE ACCURATE IF HIS REPLY TO POLONIUS HAD BEEN DIFFERENT: INSTEAD OF "WORDS, WORDS, WORDS," IT SHOULD HAVE BEEN "INFORMATION, INFORMATION, INFORMATION."

# INSURANCE PROCESSING: A CASE STUDY AND WORKSHOP

Connie Taylor
Staff Advisor
Nationwide Insurance Company

*Special Applications*
*Monday Afternoon*
*June 23, 1980*

## INSURANCE PROCESSING: A CASE STUDY AND WORKSHOP

Your Syntopican Brochure states under this afternoon's Insurance Processing announcement that insurance companies generate documents at an incredible rate--boy, is that ever a true statement. In fact, back in 1971, we found ourselves being buried in paper work at Nationwide. We had to find a better way to process this paper workload or we wouldn't have been able to build buildings large enough or hire staff enough to fill these buildings if we hadn't found a better way. What was that way? Three guesses and I'll bet you'll all be right--"Word Processing."

What is Word Processing? There are as many different answers to this question as there are people using it. At Nationwide, we like to think of it as a system that involves "People, Equipment and Procedures in the processing of information." (Words on Paper)

Before I go any further today, I would like to make a couple of points clear. First of all, I'm not saying that Nationwide's way is the best way or the only way--we truly recognize this fact. I'm only relating what we're doing and the results we have received. Also, I'm not selling equipment--I'm only relating what our experience has been.

I'd like to pursue the following plan for today's meeting. I'll give you a run-through of Nationwide's Word Processing history and results accomplished. I'll talk about the People Element of our Word Processing Concept, touch only briefly on Equipment and spend most of my time on Procedures. I will then ask you to work as teams, select a spokesperson, decide on what areas you would like to have discussed--I'll give you 20 minutes to decide this. I will then rotate among the tables and ask the spokesperson for that table the number one item on the list that their group would like to discuss. I'll open the discussion and then ask for any input that any of you might like to give--now remember, it's the participation from this part of the session that will make this a successful and worthwhile experience; so let's give it our all, OK. Participation is our goal.

I've invited another guest to join us today and I'd like to take this opportunity to introduce her to all of you--her name is Ms. Vera Productive. She'll be with us from time to time this afternoon--now she'd like you to go back in time for a few minutes to 1970. In 1970, my company, Nationwide Insurance, was approached by IBM to pilot test a new concept called Word Processing. Nationwide was quite interested because, as you may well know, if anybody needs a way to process information, it's an insurance company. Now, this was going on in Corporate headquarters, unbeknownst to me at this particular point in time because I was the Auto Policyholder Services Supervisor in our Columbus Regional Office--That's a mouthful!

One of the units that fell in my realm of responsibility was the Issue Unit. The Issue Unit was responsible for the processing of all Customer Correspondence, Forms, Endorsements, Policies, Form Letters and even some Dictated Letters. Now, it just happened that we had an MT/ST 2 and an MT/ST 4 which we used to process strictly Auto Form Letters. I had a young lady who was responsible for this function and she loved equipment, and by the way, was also a very proficient MT/ST operator. She came to me one day and said, "If I had one more MT/ST, we could do all the Fire Letters and the Fire Section could then reduce an FTE" (explain).

Well, I may be the only person who ever went to management--requested one keyboard and, in return, received a whole Word Processing program. You guessed it--my Region was selected to be the pilot for this concept. I not only was named Word Processing Coordinator, but I was also assigned the responsibility of being the first Word Processing Section Supervisor at Nationwide. It took about eight months to design and implement that pilot. With that completed, I was transferred to Home Office to become Regional Word Processing Coordinator with the responsibility of designing, selling and implementing a Word Processing system for all our Regional locations. Today, our Word Processing Network has a total of 17 Word Processing Centers and approximately 204 keyboards.

Three years ago, I was asked to take direct managerial responsibilities for Home Office Word Processing in addition to my Regional responsibilities. Yes, we started with the old MT/ST and today we still have IBM Mag Cards, Memories and System 6's. However, we have just completed a research project at Nationwide and, in the very near future, we hope to make a much needed change in our Word Processing Equipment.

## INSURANCE PROCESSING: A CASE STUDY AND WORKSHOP

When our Company made the decision to go to Word Processing, our Board of Directors set forth the following objectives:

1. Improved document effectiveness through better quality in appearance and content (i.e., elimination of pre-printed form letters). Not only have the pre-printed letters been eliminated, but all letters and forms have been reviewed and updated where possible--this has led to the elimination of much duplication of effort.

2. Gain better usage of equipment. Idle keyboards have been removed--in many instances, we are using lunch hours and adjusting employees' starting and quitting times to maximize time for keyboarding and playing out information.

3. Improve the usage of personnel skill levels for greater efficiency and economy. Design a meaningful career path. In just a short while, I'll review the career path with you.

4. Provide a system that offers a controlled growth environment for future planning. We have production reports that are monitored each day and are used constantly to measure productivity, equipment and people needs.

5. Any system proposed must be on a hard dollar cost justified basis. The latest Dartnell Report shows that the cost of a traditional business letter has now gone over the $6.00 mark. Last month at Nationwide, it cost us $2.10 for each document produced.

Yes, our objectives have been met. Today at Nationwide, Word Processing has emerged as a very successful program--we are now realizing an Annual Savings of over $700,000.

That's the past--now let's proceed to the present. Who can tell me what the most element of Word Processing is today? People. That's right--you and every other person who chooses a career in Word Processing are its most important element--because the People are what makes any system work. We can have the most sophisticated equipment in the world but you can't run it without People. Many articles that you pick up today tell you that secretaries are a scarce commodity in the marketplace. Skilled typists with grammar and spelling skills seem to be in very short supply--why? Because of the declining birth rate, fewer people enrolling in clerical courses (technical enrollment 80%), women selecting career fields outside of the office (more attractive money), newly created job positions--because after all, who wants to be a slave or an errand runner when they can be the executive person.

The days of glamorizing the career titled "secretary" is now passe'--the days of equality and the real world are upon us. What can we do? Can we do anything at all? Of course, we can. First of all, learn the concepts of Word Processing, recognize its potential and give deserved and proper recognition to those who make its success possible--the People who make it work.

At Nationwide, we have written job descriptions and established salary ranges to create a meaningful career path that goes like this.

WORD PROCESSING

| Position | Grade | Salary Range |
|---|---|---|
| Utility Clerk | 4 | $146-209 |
| Operator | 5A | $161-235 |
| Technician | 5B | $169-241 |
| Copy Editor | 6 | $177-251 |
| Specialist | 6 | $177-251 |
| Instructor | 7 | $10,000-$14,500 |
| Unit Supervisor | 9 | $13,000-$17,500 |
| Section Supervisor | 11 | $16,000-$27,000 |
| Coordinator | 13 | $20,000-$30,000 |
| Division Manager | 15 | $24,000-$35,000 |

At Nationwide, our minimum requirement is 60 words per minute with no more than three errors. For every 5 words a minute you can type over that, we will increase an individual's starting salary by $3.00 a week.

We firmly believe that text-editing machines are not the answer to poor typing--the higher level of skill that any typist possesses, the better she/he will be able to use this type of equipment. And don't ever think that the basics can be avoided--to do so could prove to be disastrous. Your people need good grammar skills along with the ability to spell.

Another thing we make sure of is that we offer intensive keyboard training programs; even remedial grammar review is offered--it's on a volunteer basis and if they're willing to apply themselves, we'll give them Company time to take the course. (One hour a day--two times a week--total time required about 30 hours.) We hold monthly meetings. In these, we encourage input from each employee through the use of role playing, problem discussions and other participative management experiments.

We make sure that progress reviews are given in a timely manner and that salary increases are recommended when merited.

We have established job standards of quantity and quality and, I feel because we expect a lot, we get a lot in return and the people are proud of their accomplishments. People like to work if they feel their work is worthwhile.

You know managers, not the secretaries, will be the first to tell you that no one likes to type all day. Believe it or not, some people really do enjoy typing. So I guess in closing the people part of this presentation, I'd like to leave you with one very important suggestion. "Know your people"--they are each uniquely different. That's the long and short of it--the width and breadth of it.

As I mentioned earlier, I just want to pass quickly over Equipment today--there are many different types of Equipment available in the marketplace today, as you're well aware. There are stand-alone systems, distributed processing systems and shared-logic systems, etc. And they can all perform many different and varied functions--but in different ways. They all have their good points and they all have their bad points. Any of you who heard me talk on equipment in detail know that I have a list of rules that I promote for the establishing of a Word Processing System and the Selection of Equipment. I'll just quickly review these with you.

## RULE I: KNOW YOUR OWN NEEDS--

It doesn't make any difference what the ABC or the XYZ Companies are doing if your requirements are different from theirs; nor does it make any difference what fancy bells and whistles or buttons and bows that the Vendors tell you their equipment has. The point boils down to a very basic fact--do you need his specific buttons and bows to accomplish your work.

## RULE II: KNOW YOUR PRESENT SYSTEM--

A. The type of work that is being processed.
B. The volume of work that is being processed.
C. The users' service requirements.
D. The Workflow: Where does the work come from?
Where does it go?
E. The staffing required.
F. The equipment being used.

Now you know your present system; now you're ready to begin planning for the new system.

## RULE III: DETERMINE TYPES OF WORK TO BE PRODUCED--

A. Letters--Memos--Reports
B. Manuals
C. Statistical Documents
D. Form Letters
E. Paragraph Selection
F. Forms--Continuous
G. Forms--Individual
H. Special Formats

## RULE IV: DETERMINE SPECIAL FEATURES NEEDED--

A. Communications?
B. File/Sort Capabilities?
Ex: Name & Address
File--Calendar
C. Interface with Main Frame?
D. Interface with other Word Processors?
E. Interface with Photo-Typesetter?
F. Interface with special printers?
G. Management Information Statistics?
(Operator--User--Center)

H. Logging Capabilities? (Work in System; Author--Type--Time in--Time out)

This all leads in to my next set of Rules.

### RULE V: KEEP YOURSELF ABREAST OF THE MARKETPLACE--

A. Read Business Publications--Seybold Reports are excellent and there are many others.
B. Attend Word Processing Seminars and Business Shows.
C. Join a Word Processing Organization.
D. Attend Equipment Demonstrations.

Now you have a basic idea of what's available--worn out yet? I hope not, because now you're ready to go into in-depth evaluations. I would recommend that you choose from 4 to 6 Vendors of those systems that you feel might best answer your needs and ask for an in-depth demonstation and follow the steps as outlined in the next Rule.

### RULE VI: USE AN EVALUATION FORM--

A. Establish the criteria that covers your needs.
B. Assign points or weights according to your needs.
C. Use these forms while attending in-depth equipment demonstrations.

### RULE VII: GET TO KNOW YOUR VENDORS--

A. What type of service do they provide?
B. What type of training do they provide?
C. What type of support do they provide?

Don't be afraid to expect support from your Vendors; insist upon it.

You should now have your evaluation points totalled and you've got a pretty good idea what two or three types of equipment seemed to meet your needs. You're now headed for the final stretch.

## RULE VIII: CONDUCT HANDS-ON TESTING OF YOUR APPLICATIONS--

A. Actually spend the time needed to train on the systems you have selected; or appoint someone who knows your applications to do this for you.
B. Work with the Vendors in actually doing sample procedures of your work.

Make sure before making your final choice that you have considered the reputation of the Vendor as well as their ability and interest.

## RULE IX: DON'T BUY EQUIPMENT--LEASE OR RENT IT--

That way you can always stay abreast of the current marketplace; it also allows you to get rid of a Vendor that doesn't live up to his promises--you don't need him.

## RULE X: BASE YOUR FINAL DECISION ON BOTTOM-LINE RESULTS--

I'm not saying to buy the least expensive equipment--I'm saying buy the piece of equipment that will best allow you to accomplish your needs and give you the best return on the dollars invested.

## RULE XI: MAKE SURE YOU PROPERLY UTILIZE YOUR EQUIPMENT AND YOUR PEOPLE ONCE THE SYSTEM IS INSTALLED--

Selection of Equipment is a hard job and it requires time and commitment to do it correctly.

And now MS. VERA PRODUCTIVE says it's time to talk about the third element of Word Processing--"PROCEDURES".

At Nationwide, we feel that Procedures and Manuals are very important not only for the Technicians in the Center but for the Users of the Center as well.

Technicians' Manuals outline step-by-step procedures for how each type of work should be processed. These manuals serve not only as excellent training guides; they also make revisions to procedures much easier, because it eliminates guess work--thus it tends to improve processing time. If a Technician starts on a job one day and is not there when the job is returned for revision, any technician will be able to know exactly what codes and format instructions to follow because there have been universal standards set for that document--any doubt, she refers to her Manual.

It is also very important for the Users to know what to expect. It helps keep misunderstandings to a minimum. Even though I believe that you cannot over-document and that it's very necessary to have established procedures--I also believe that to have a successful Word Processing Program, you must first and foremost be a service center. It is very important to be responsive to each User's needs. You must be flexible--I know it sounds like I speak with forked-tongue, but we have found by working with our Users when they have a special request; they are generally most cooperative. We advise them of Company procedure but if they want to deviate, we'll work with them in trying to accommodate their requests. It thus becomes the Technician's responsibility to document the process.

Again, it helps to "Know Your People" and Users are people, too, and each user is also uniquely different. We serve over 650 principals in our Main Center at Home Office and thus we deal with many different variations of work and people.

I'll review with you how work flows in our Home Office Word Processing System, our Satellite Concept and the typical Regional Word Processing Center set-up.

In our Home Office, work is accepted as hard copy, handwritten or typewritten--however, we do encourage and reward dictated input by giving a two-hour service response for one or two pages of finished product. But I'm getting a little ahead of myself here. Work is received by the receptionist (it is delivered by Administrative Secretaries and regular secretaries) and then the process begins. Each job received has an instruction sheet which has been completed by the User. (In your handout packet, you will find a sample of most forms to which I'll be referring.) The instruction sheet is stamped with a job number and a corresponding job ticket is also stamped with the same number. (Pink tickets indicate Record--yellow tickets, Revision.) Information is then completed on the daily logs such as job number, type of work, time received, author, date and time needed, date and time Technician takes the work, date and time she completes the work, proofing information, completion time, number of pages produced. Once this step is completed, the tickets are placed on the board in their time due order--jobs are placed in a basket in numeric sequence. Rushes are given to the Supervisors for assignment. Dictated material follows pretty much the same procedure except the Receptionist will complete the instruction sheet--this type of work is distributed immediately in order that we might meet our two-hour response time goal.

Once the Technician has completed recording or revising her job, it is ready for unattended playout--either on the ink-jet printer or the 62/40. (Playout instruction sheets are in your packet.) The Technicians take turns being responsible for playout (1/2 day at a time). Once work is completed, it is passed to the Copy Editors where it is proofed and edited. If corrections are needed, it's returned to the Technicians for editing. Completed work is placed in the out trays for pick-up. Copy Editors post logs by individuals in order to monitor and maintain the quality of each Technician's work.

In Home Office, we do approximately 85% text processing and 15% form processing. In the Regions, it's just about reversed because in the Regions, we're dealing with direct policyholder correspondence--Endorsements, Policies, Form Letters and Dictated Letters. Work is received in Day's Work Batches; it is usually broken down by type of work and passed to the Technician(s) who is (are) responsible for that particular type of work. Example: Form Letters may be processed by certain Technicians; Fire Low Volume Forms or Auto Low Volume Forms by certain Technicians and High Volume Forms by others in the Center. We have developed at Nationwide a very unique system for the processing of Low Volume Endorsements by using the Memory keyboard.

> MEMORY KEYBOARD--has both a working memory and an off-line storage memory--we have found this to be very effective for the processing of low-volume forms documents.
>
> We pre-code all carriage movements, tabs, spaces and constant information--store it off-line, bring it into working memory when we need to produce that particular document--

insert the form--depress auto-key and the equipment will position itself where fill-in information is required.

No mistakes, it's ready for mailing--incorrect, make your corrections; insert new form and play out final copy.

You have just saved 52% of the normal keystrokes required to produce the document in a traditional environment.

High Volume procedures are again all unattended playout. Clerical employees in the Center are generally responsible for batching work, overseeing unattended playout and final matching and mailing. In Home Office, we are also experimenting with Satellite Centers and have two in operation today--one in the Office of Customer Relations and one in the Office of General Counsel. We feel we can best serve our Users in these areas with on-site technicians and equipment. We maintain central control so we can make sure equipment and people are properly utilized.

Filing systems are a very important element you don't want to overlook. At Nationwide, we use three filing systems as we have over 100,000 magnetic cards on file. (Explain our system.)

Quality Control is a very important element in a successful Word Processing Program. (Explain our System.)

And last but not least would be Individual Productivity Controls. (Explain our system.)

I guess you can tell by this time I do seem to possess that ever famous Irish Gift of Gab.

Does anyone have any questions? OK, now it's your turn to go to work--remember, you'll have 20 minutes to decide what your group would like to discuss. I will then field the questions.

I've enjoyed being here today--I thank you for being such a very responsive group.

MS. VERA PRODUCTIVE wishes to "Thank You" also for paying a visit to our World. In closing, she'd like to leave you with a little poem:

I love a finished speaker,
I really truly do;
I don't mean one that's polished,
I just mean one who's through.

OPERATOR ________
NEED JOB ________

CONTROL
CARD #(s) __________

PROGRAM
CARD #(s) __________

# Cards (not
including above ______

# Copies (Each) ______

PAPER 2 __________
PAPER 4 __________

Single Spaced ________
Double Spaced ________
Single/Double ________

**PAPER**

Fisher
Regular __________
Small __________
Click __________
3 Co. __________
Firm __________
NW Life __________
NW Corp __________
Yellow 2nd ______
Printer:
8½ x 11__________
8½ x 14__________
Good Bond:
8½ x 11__________
8½ x 14__________
ENVELOPES ________
SWITCHES ________

PLEASE BE SURE ALL INFORMATION IS CHECKED and/or FILLED IN PROPERLY.

Thank You

Date ____________________ Floor __________

Job No. ________

### ROUGH DRAFT INSTRUCTIONS

Word Processing Instruction Sheet

Name ______________________________________________

Dept. ________________________________ Ext. __________

( ) CONFIDENTIAL

| Rough Draft to be: | Final Copy to be: | |
|---|---|---|
| ( ) Single Spaced | ( ) Single Spaced | ( ) 8½ x 11 |
| ( ) Double Spaced | ( ) Double Spaced | ( ) 8½ x 14 |

TURN-AROUND

( ) Routine*
( ) Other __________

______________ Word Processing File Number

STORAGE

( ) 2 days (for documents to be finalized within this time.)

() Until __________ (Temporary Storage)

( ) Permanently (Manuals, Scripts, etc.)

Special Instructions ______________________________

______________________________________________

______________________________________________

______________________________________________

NOTE: Attach this instruction sheet to all work sent to the Word Processing Center.

*Routine--Time Schedule:

See Reverse Side

Auto 6267-D

---

Date ____________________ Floor __________

Job No. ________

### FINAL COPY INSTRUCTIONS

Word Processing Instruction Sheet

Name ______________________________________________

Dept. ________________________________ Ext. __________

TURN-AROUND
( ) Routine*
( ) Other __________

( ) CONFIDENTIAL

______________ Word Processing File Number

Final copy to be:
( ) Single Spaced ( ) Double Spaced

Final copy on:
( ) 1 Part Pinfeed--8½ x 11
( ) 1 Part Pinfeed--8½ x 14
( ) 2 Part Pinfeed--8½ x 11
( ) 4 Part Pinfeed--8½ x 11
( ) 6 Part Pinfeed--8½ x 11
( ) 6 Part Pinfeed--11 x 8½
( ) Form
( ) Company Letterhead
( ) Envelope

________ Carbon copies for Company Letterhead only (any number up to 6)

STORAGE Fill out when it changes from rough draft instruction.

( ) 2 days (for documents to be finalized within this time.)

( ) Until ______________________ (Temporary Storage)

( ) Permanently (Manuals, Scripts, etc.)

NOTE: ( ) Return to me for review.
( ) Return to Adm. Secy. for review and distribution.

Special Instructions ______________________________

______________________________________________

______________________________________________

NOTE: Attach this instruction sheet to all work sent to Word Processing Center.

*Routine--Time Schedule:

| | | | | |
|---|---|---|---|---|
| Normal Dictation | - | 2 pages or less | - | 2 hrs. |
| Hard Copy Recording | - | 1 page or less | - | 4 to 6 hrs. |
| and Revisions | - | 2-10 pages | - | 1 day |
| | | 10-20 pages | - | 2 days |
| | - | over 20 pages | - | allow 1 extra day for each 10 pages |

## COMPLAINT REGISTER

**CIRCLE STATE WHERE COMPLAINT ORIGINATED**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AL | AK | AZ | AR | CA | CO | CT | DE | DC | FL | GA | ID | IL |
| IN | IA | KS | KY | LA | ME | MD | MA | MI | MN | MS | MO | MT |
| NB | NV | NH | NJ | NM | NY | NC | ND | OH | OK | OR | PA | PR |
| RI | SC | SD | TN | TX | UT | VT | VA | VI | WA | WV | WI | WY |

• SEE REVERSE SIDE FOR CODES •

LINE OF BUSINESS CODE

REASON CODE

CLAIM NO.

POLICY NO.

COMPLAINANT'S NAME

PHONE NO.

ACC. DATE/DATE OF LOSS

ADDRESS

DATE OF COMPLAINT

POLICYHOLDER'S NAME (IF DIFFERENT THAN COMPLAINANT)

PHONE NO.

DATE OF CO. RESPONSE

ADDRESS

DATE COMPLAINT CLOSED

AGENT'S NAME

ADJUSTER'S NAME

SOURCE OF COMPLAINT

HOW COMPLAINT WAS RECEIVED (PHONE, LETTER ETC.)

DEPARTMENT HANDLING

NATURE OF COMPLAINT

FINAL DISPOSITION

**DISTRIBUTION** — Forward Pink copy to Control Point same day as complaint originates for follow-up coordination. Blue copy is for Sub-Control Point. Retain White original and Yellow copy. Upon final disposition of complaint, complete complaint register — forward White original to Control Point and file Yellow copy in policy or claim file in operating unit.

Auto 5253-B

## REASON CODE

**SYMBOL** **NATURE OF COMPLAINT**

1) **Underwriting**
    - a) company underwriting
    - b) individual's application underwriting (this refers to any complaint where misrepresentations or declarations in an application for insurance resulted in company action involved in the complaint)
    - c) cancellation
    - d) rescission
    - e) non-renewal
    - f) premiums and rating
    - g) delays
    - h) refusal to insure
    - i) miscellaneous (not covered by above)

2) **Marketing and Sales**
    - a) general advertising
    - b) mass marketing advertising — (advertising which is essentially directed to reach more people than in a one to one relationship)
    - c) agent handling
    - d) replacement
    - e) dividend illustration
    - f) delays
    - g) alleged misleading statement or misrepresentation
    - h) miscellaneous (not covered by above)

3) **Claims**
    - a) claims procedure
    - b) delays
    - c) unsatisfactory settlements
    - d) natural disaster adjusting (hurricane or flood situations or other situations which produce a large number of claims)
    - e) unsatisfactory settlement offers
    - f) denial of claim
    - g) miscellaneous (not covered by above)

4) Policyholder Service
    - a) failure to respond
    - b) delays
    - c) miscellaneous (not covered by above)

5) **Miscellaneous**

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**CODE** **LINE OF BUSINESS**

1) Automobile
2) Fire
3) Homeowners — Farmowners
4) Crop
5) Inland Marine
6) Individual Life
7) Group Life
8) Annuities
9) Individual Health — Accident & Sickness
10) Group Health — Accident & Sickness
11) Workmen's Compensation
12) Liability Insurance other than Automobile
13) Mobile Homeowners
14) Miscellaneous (not covered by above.)

Date____/____/________
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## HOME OFFICE WORD PROCESSING DAILY COMMUNICATIONS LOG

| *Sending Region Dept/Receiving Region-Dept | No. of Pages Memos Sent | No. of Pages Letters Sent | No. of Pages Reports Sent | No. of Pages Forms Sent | ✓ | | |
|---|---|---|---|---|---|---|---|
| | | | | | UR | AM | PM |
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***SENDING/RECEIVING DEPARTMENT ABBREVIATIONS**

VP--Vice President--Regional Manager
RA--Administration Department
RC--Claims Department
RS--Systems Department
RU--Underwriting Department
RM--Sales Department
RP--Personnel Department
RB--Commercial Insurance Department

**SENDING/RECEIVING REGION ABBREVIATIONS**

CO - COLRO
EP - EPARO
GU - GULFRO
ME - MERO
NE - NERO
NO - NORO
PR - PRICO
SE - SERO
SO - SOCRO
TS - TSRO
VA - VARO
WE - WESRO
WP - WPARO
HO - Home Office

4174,2046(A30)mk

| | MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | | FRIDAY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DEC | NBI | OS/6 | DEC | NBI | OS/6 | DEC | NBI | OS/6 | DEC | NBI | OS/6 | DEC | NBI | OS/6 |
| AM 10-15 | | | | | | | | | | | | | | | |
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## MACHINE DOWNTIME FORM

| EQUIP. | DATE | TIME DOWN | PROBLEM | TIME CALLED | ARRIVAL TIME | COMPLETION TIME | TOTAL DOWN TIME |
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Name ____________________ Utility Clerk ________________ Copy Editor ____________________

Employee # ________________ Operator ________________ System Specialist ______________

Date of Entry ______________ Technician ________________ Satellite Station ______________

Salary _____ Clerical _____ Specialist ________________ Instructor ____________________

| BREAKDOWNS | BASIC | T/V | PROF. | COMMENTS | BREAKDOWNS | BASIC | T/V | PROF. | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| EQUIPMENT | | | | | Forms | | | | |
| Memory | | | | | O/S Instructions | | | | |
| Mag II | | | | | Proj. Assignment | | | | |
| Printer | | | | | Proj. Cost | | | | |
| Control Cards | | | | | Transmittals | | | | |
| Operator | | | | | Program Narrative | | | | |
| EDD | | | | | Flowcharts | | | | |
| 6240 | | | | | S&DP Manuals | | | | |
| OS/6 | | | | | | | | | |
| | | | | | TECHNICAL RECORDING | | | | |
| LOGGING | | | | | Tab Overrides | | | | |
| Departmental | | | | | Form Cards | | | | |
| Front Desk | | | | | Rollbacks | | | | |
| Revision Logs | | | | | Routing Slips | | | | |
| Overtime/Clerical | | | | | Switches | | | | |
| Daily OIP | | | | | | | | | |
| Weekly Recap | | | | | STORAGE MAINTENANCE | | | | |
| | | | | | Color Cards | | | | |
| PROCEDURAL RECORDING | | | | | Alpha-Numeric | | | | |
| Memos | | | | | Temporary | | | | |
| Letters | | | | | Permanent | | | | |
| External Specs | | | | | | | | | |
| Internal Specs | | | | | REVISION | | | | |
| Minutes | | | | | Light | | | | |
| CSR | | | | | Medium | | | | |
| Transcription | | | | | Heavy | | | | |
| Releases | | | | | | | | | |
| Speeches | | | | | | | | | |

Name ____________________

| BREAKDOWNS | BASIC | T/V | PROF. | COMMENTS | BREAKDOWNS | BASIC | T/V | PROF. | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| EXEC./CONF. | | | | | BACK-UP TRAINING | | | | |
| Confidential | | | | | Proofing | | | | |
| Legal | | | | | Copy-Editing | | | | |
| Office of President | | | | | Logging | | | | |
| Fisher | | | | | Training | | | | |
| Doyle | | | | | | | | | |
| Office of Gen Chair | | | | | | | | | |
| Jeffers | | | | | HOUSEKEEPING | | | | |
| Click | | | | | Own Area | | | | |
| Board Minutes | | | | | Printer Table | | | | |
| | | | | | Storage Files | | | | |
| MISCELLANEOUS | | | | | | | | | |
| Release Maint. | | | | | ADDITIONAL TRAINING | | | | |
| Form Card Update | | | | | Grammar Package | | | | |
| Machine Demo | | | | | Supervisor Manuals | | | | |
| Ordering | | | | | Supervisory Skills | | | | |
| Overlays | | | | | | | | | |
| Printer Monthly | | | | | | | | | |
| Service Calls | | | | | | | | | |
| ID Cards | | | | | | | | | |

## EMPLOYEE ACTIVITY REPORT

CURRENT DATE ____________________

| | | | |
|---|---|---|---|
| EMPLOYEE NAME | EMPLOYEE NO. | UNIT | Hrs. Worked |
| | | | |

| OPER NO | MEASURED WORK TALLY – COUNT | TOTAL VOLUME | OTHER TIME – EXPLANATION | HOURS |
|---|---|---|---|---|
| | | | UNMEASURED | |
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| MIN. | 0 - 2 | 3 - 6 | 7 - 12 | 13 - 18 | 19 - 24 | 25 - 30 | 31 - 36 | 37 - 42 | 43 - 48 | 49 - 54 | 55 - 60 |
| HOURS | .0 | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | 1.0 |

| OPER NO | MEASURED WORK TALLY – COUNT | TOTAL VOLUME | OPER NO | MEASURED WORK TALLY – COUNT | TOTAL VOLUME |
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## WEEKLY ACTIVITY RECAP

EMPLOYEE NAME

SECTION/UNIT

WEEK ENDING

SUPERVISOR'S INITIALS

### ACTIVITY HEADER (ALLOCATION OF TIME)

| 1 8 | 9 | 13 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|
| DISBURSEMENT CODE | R | EMPLOYEE NO. | C | P | T | PRE UPT |
| | J | | 3 | | | |

| DAY | Measured | Unmeasured | Delay | Errors | Training | Service And Admin. | Loaned | Approved Activity | ABS | VAC & HOL | TOTAL | Overtime |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| 6 | | | | | | | | | | | | |
| | 26 29 | 30 33 | 34 37 | 38 41 | 42 45 | 46 49 | 50 53 | 54 57 | 58 61 | 62 65 | 66 69 | 70 73 |
| TOTALS → | | | | | | | | | | | | |

### ACTIVITY DETAIL (FREQUENCY OF OPERATIONS)

| 1 18 | 19 | 20 |
|---|---|---|
| 1-18 DUPLICATE FROM ABOVE | C<br>4 | P<br>Not Used |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY 1 | | DAY 1 | | DAY 1 | | DAY 1 | | DAY 1 | | DAY 1 | |
| 2 | | 2 | | 2 | | 2 | | 2 | | 2 | |
| 3 | | 3 | | 3 | | 3 | | 3 | | 3 | |
| 4 | | 4 | | 4 | | 4 | | 4 | | 4 | |
| 5 | | 5 | | 5 | | 5 | | 5 | | 5 | |
| 6 | | 6 | | 6 | | 6 | | 6 | | 6 | |
| 21 23 | 24 30 | 31 33 | 34 40 | 41 43 | 44 50 | 51 53 | 54 60 | 61 63 | 64 70 | 71 73 | 74 80 |
| OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. |
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| DAY 1 | | DAY 1 | | DAY 1 | | DAY 1 | | DAY 1 | | DAY 1 | |
| 2 | | 2 | | 2 | | 2 | | 2 | | 2 | |
| 3 | | 3 | | 3 | | 3 | | 3 | | 3 | |
| 4 | | 4 | | 4 | | 4 | | 4 | | 4 | |
| 5 | | 5 | | 5 | | 5 | | 5 | | 5 | |
| 6 | | 6 | | 6 | | 6 | | 6 | | 6 | |
| 21 23 | 24 30 | 31 33 | 34 40 | 41 43 | 44 50 | 51 53 | 54 60 | 61 63 | 64 70 | 71 73 | 74 80 |
| OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. |
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| 21 23 | 24 30 | 31 33 | 34 40 | 41 43 | 44 50 | 51 53 | 54 60 | 61 63 | 64 70 | 71 73 | 74 80 |
| OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. |
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## ACTIVITY DETAIL (FREQUENCY OF OPERATIONS)

| 1 | 18 | 19 | 20 |
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| 1-18 DUPLICATE FROM ABOVE |  | C<br>4 | P<br>Not<br>Used |

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| DAY 1 | DAY 1 | DAY 1 | DAY 1 | DAY 1 | DAY 1 |
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| 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 | 6 |

| 21 23 | 24 30 | 31 33 | 34 40 | 41 43 | 44 50 | 51 53 | 54 60 | 61 63 | 64 70 | 71 73 | 74 80 |
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| OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. |
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| 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 | 6 |

| 21 23 | 24 30 | 31 33 | 34 40 | 41 43 | 44 50 | 51 53 | 54 60 | 61 63 | 64 70 | 71 73 | 74 80 |
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| 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 | 6 |

| 21 23 | 24 30 | 31 33 | 34 40 | 41 43 | 44 50 | 51 53 | 54 60 | 61 63 | 64 70 | 71 73 | 74 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. |
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| 21 23 | 24 30 | 31 33 | 34 40 | 41 43 | 44 50 | 51 53 | 54 60 | 61 63 | 64 70 | 71 73 | 74 80 |
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| DAY 1 | DAY 1 | DAY 1 | DAY 1 | DAY 1 | DAY 1 |
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| 21 23 | 24 30 | 31 33 | 34 40 | 41 43 | 44 50 | 51 53 | 54 60 | 61 63 | 64 70 | 71 73 | 74 80 |
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| OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. | OPR. # | TOTAL VOL. |
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INSURANCE PROCESSING: A CASE STUDY AND WORKSHOP

DATE: ______________________

## DAILY
## PRODUCTIVITY ANALYSIS

| Technician's Name | Productivity Based on the Last Monthly Report | Adjusted Productivity | ACTUAL Productivity | Hours Worked |
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Total Error Free Pages ____________

*Not Technician's Error

Name ______________________________

# CHAPTER MANAGEMENT

Gayla McLean
Administrative Services
Southern Bell Telephone & Telegraph Company

*Special Applications*
*Monday Afternoon*
*June 23, 1980*

## INTERNATIONAL WORD PROCESSING ASSOCIATION

1. WHAT ARE THE GOALS AND PURPOSE OF IWP?

   Develop and disseminate word/information processing ideas, methods and techniques, and enhance the professional status.

2. IS IWP A TRULY INTERNATIONAL ASSOCIATION?

   Yes. Canada, London, Australia, 70 North American Chapters, and individual members in 20 countries.

3. WHAT WAS THE TOTAL MEMBERSHIP AS OF APRIL, 1980?

   10,000

4. HOW MANY CONFERENCES A YEAR DOES IWP SPONSOR?

   Four. Spring and Fall Symposium, Summer Syntopican, Annual Canadian Conference.

5. WHEN DOES THE IWP 'YEAR' BEGIN AND END?

   Although it begins on June 1 and ends on May 31, for practical purposes leadership terms will begin and end at each annual conference (Syntopican). New chapter leadership will begin in June.

6. WHAT ONGOING PUBLICATIONS DO MEMBERS RECEIVE?

   Currently all members receive WORDS, Viewpoint, Human Resources and Word Processing, Word Processing Glossary, and Time magazine Office Automation Supplement. Other publications are available to members at reduced rates.

7. WHEN ARE MEMBERS BILLED FOR THEIR ANNUAL DUES?

   They're invoiced each year on a quarterly basis depending upon the date they originally joined IWP.

8. WHAT FORM DOES THIS DUES BILLING PROCESS TAKE?

   Each member is first sent an invoice, then a reminder, then a final reminder all during a three-month period. In the event dues payment is not received, the member is advised of having been dropped from the rolls after the final reminder has been sent.

9. WHAT HAPPENS IF A MEMBER TRANSFERS FROM ONE COMPANY TO ANOTHER OR FROM ONE CITY TO ANOTHER?

The member retains membership and the former organization may select a replacement member at no additional dues for the remainder of the year. In both cases an application will be needed in order to maintain proper records. This process may not be repeated more than once a year.

10. WHAT CLASSIFICATIONS OF MEMBERSHIP ARE THERE?

Only one--regular member. There are no provisions for alternate, associate, sponsor, junior or other types of membership, with the exception of International Presidents who become lifetime members after completion of their term of office.

11. WHEN A MEMBER JOINS AND THERE IS A LOCAL CHAPTER IN THE CITY, IS THE CHAPTER ADVISED?

Yes. The new member is advised of a chapter's existence and the chapter is advised of the membership interest. Therefore, both chapter and member may decide affiliation.

12. FORFEITURE OF MEMBERSHIP WILL OCCUR WHEN DUES ARE MORE THAN 75 DAYS IN ARREAR.

## CHAPTERS

13. WHAT IS THE PURPOSE OF A CHAPTER?

To bring together the local membership in order to allow for a more personal opportunity to communicate on subjects of information processing interest.

14. WHAT REPORTS, DOCUMENTS, AND INFORMATION SHOULD A CHAPTER SUBMIT TO THE INTERNATIONAL OFFICE?

Chapters are to regularly provide the Home Office with a copy of an annual financial statement, annual audit, all minutes of meetings, newsletters, changes of By-Laws, proficiency reports, honor society reports, membership applications, and an updated list of officers.

### 15. HOW ARE CHAPTERS ORGANIZED?

All chapters are required to have a leadership structure consisting of a President, Vice President-Membership, Vice President-Programs, plus a Secretary/Treasurer.

### 16. CHAPTERS MAY BE REVOKED BY A MAJORITY VOTE OF THE EXECUTIVE BOARD IF ANY CHAPTER HAS: (YOU MAY SELECT MORE THAN ONE.)

A. Fallen below 20 in number
B. Failed to participate in the Proficiency Program
C. Failed to comply with policies or practices of the Association
D. Failed to provide programs in support of the basic purpose of the Association

A, C, D

### 17. WHO MUST APPROVE REVISIONS TO CHAPTER BY-LAWS?

IWP's Executive Director.

### 18. HOW ARE COMMITTEES CHOSEN AND BY WHOM?

The President usually selects committees to assist in maintaining good chapter performance. Such committees could consist of auditing, membership acquisition, nominating, education, etc. Committee assignments encourage membership involvement, and provide a roster of possible candidates for future office.

### 19. HOW SHOULD THE NOMINATING COMMITTEE BE FORMED?

The group consists of immediate past Chapter President and at least two other members who evaluate nominations submitted by the membership. They submit a slate of officers to be presented for balloting at the Annual meeting which must be held on or before June 1 of each year.

### 20. WHO IS QUALIFIED TO BE A MEMBER?

Individuals in a supervisory or management position or those who are actively involved in information processing systems within their own organizations. Manufacturers of equipment, supplies and services, consultants and publishers may serve in a leadership position at the chapter level if so stated in the chapter's by-laws.

21. WHAT ARE THE DUES?

$50 annually. (U. S. Currency)

22. MAY A CHAPTER ADD AN INITIATION FEE ON TOP OF THE $50 IWP DUES WHEN A MEMBER FIRST JOINS?

Yes. One time initiation fees may be charged by local chapters in an amount established by that chapter and approved by the Executive Board.

23. HOW OFTEN DOES THE CHAPTER RECEIVE ITS $15 REBATE FROM DUES OF NEW MEMBERS?

Once every 90 days.

24. MAY A CHAPTER ADD TO THE ANNUAL IWP DUES IN ORDER TO INCREASE ITS RESOURCES?

No.

25. MAY A MEMBER JOIN IWP WITHOUT CHAPTER AFFILIATION, ASSUMING A CHAPTER EXISTS IN THE COMMUNITY?

If for any reason the chapter should decline to accept the member, or if the member should choose not to be affiliated with the chapter, International membership is acceptable.

26. WHAT IS THE PROCEDURE FOR WELCOMING NEW MEMBERS?

The Vice President-Membership presents the certificate to the new member at a chapter meeting.

27. WHAT CHAPTER MEETINGS ARE ESSENTIAL? HOW MANY BUSINESS MEETINGS ARE REQUIRED ANNUALLY?

Eight chapter Board meetings are required yearly. These are called by the President. Concise accurate minutes must be recorded by the secretary and distributed promptly to the officers. Six general meetings are required and "Robert's Rules of Order" should be followed in conducting all business.

28. WHAT ABOUT DIRECTORS OR OFFICERS WHO MAY MISS MORE THAN THREE CONSECUTIVE MEETINGS OF THE CHAPTER BOARD?

The President determines the reasons. If these reflect a lack of interest or lack of ability to participate, the Officer/Director should be requested to resign. A replacement may be appointed by the Chapter Board of Directors, or the Nominating Committee may provide a recommendation which must be ratified/approved by the Board.

29. MAY CHAPTERS HAVE CLOSED MEETINGS FOR MEMBERS ONLY?

Yes.

30. HOW FAR IN ADVANCE SHOULD MEMBERS BE NOTIFIED OF MEETINGS?

Not less than 10 days.

31. SHOULD ATTENDEES WEAR BADGES AT CHAPTER MEETINGS?

If more than a dozen people attend chapter meetings, badges should always be provided which indicate the individual's name and company affiliation. 'Stick on' badges are readily available from most stationery stores for this purpose, or special badges may be printed by the chapter.

32. ARE VOTING MEMBERS OF THE IWP EXECUTIVE BOARD OR A CHAPTER BOARD EVER COMPENSATED FOR THEIR SERVICES?

No.

33. WHAT ARE THE NECESSARY COMPONENTS OF EACH CHAPTER MEETING?

Agenda--submitted by President, approved by the Board; Minutes; Treasurer's Report; meeting attendance; name tags; banner displayed; if head table used, appropriate seating arrangements; and adherence to "Robert's Rules of Order."

34. HOW IS THE CHAPTER AUDITING COMMITTEE SELECTED:

The President selects three chapter members who are aware of accounting procedures. They are required to audit the accounts of the chapter annually. This committee reports directly to the President and should not include the Chapter Treasurer nor any of the officers of the chapter. Audit findings must be sent to the Home Office and the membership should be advised.

35. WHAT IS THE PURPOSE OF A MEMBERSHIP ROSTER?

The purpose of a membership roster is for chapter administration. This list should be made available only to the Home Office and the local chapter members.

# AN INTRODUCTION TO WORD/INFORMATION PROCESSING

Jan Duffy, Moderator
Partner
Duffy and Bentley Consulting Group

Derek Remsen
Manager, Clinical Systems
McGill University

*Level I*
*Tuesday Afternoon*
*June 24, 1980*

# AN INTRODUCTION TO WORD/INFORMATION PROCESSING

Derek Remsen

# 12 KEYS TO WORD PROCESSING SYSTEM SUCCESS

1. SET REALISTIC GOALS FOR THE SYSTEMS.
   - DON'T TRY TO ACCOMPLISH TOO MUCH IN TOO SHORT A TIME.
   - EXPECT OVERALL SUPPORT FOR THE SYSTEM TO GROW SLOWLY.
2. CONTINUE TO SELL THE PROGRAM TO BOTH USERS AND WORKERS.
   - BE SURE THAT YOU ARE DELIVERING WHAT YOU PROMISED.
   - DON'T CALL IT A "TYPING POOL."
3. SELECT WORD PROCESSING EMPLOYEES WITH CARE.
   - THIS MUST NOT BECOME A PLACE FOR NEW HIRES WAITING TO GET A BETTER POSITION WITHIN THE ORGANIZATION.
   - THIS MUST NOT BECOME A DUMPING PLACE FOR INEFFECTUAL OLDER EMPLOYEES.
4. PROVIDE REALISTIC PROMOTIONAL OPPORTUNITIES FOR THOSE WHO WORK IN THE WORD PROCESSING FACILITY.
5. MAINTAIN PLEASANT WORKING CONDITIONS IN THE WORD PROCESSING OPERATION.
6. PROVIDE STRONG SUPERVISION FOR THE WORD PROCESSING OPERATION.
   - GUIDING WORKERS.
   - DEALING DECISIVELY WITH USERS.
7. DON'T ATTEMPT TO HANDLE WORK IN THE WORD PROCESSING FACILITY THAT DOES NOT BELONG THERE.
   - PROOF READING
   - COMPUTATIONS
   - CHART MAKING

8. ESTABLISH REASONABLE SERVICE LEVELS AND MAINTAIN THEM.

9. DEVELOP WELL-DEFINED PROCEDURES FOR USING THE WORD PROCESSING FACILITY.

10. SET REALISTIC WORK PERFORMANCE GOALS FOR WORD PROCESSING FACILITY EMPLOYEES.

11. RECORD AND MONITOR EMPLOYEE PERFORMANCE.

12. REVIEW THE QUALITY AND VOLUME OF WORK PRODUCED AT REGULAR INTERVALS.

## CHANGE

"THE DISTURBING FACT IS THAT THE VAST MAJORITY OF PEOPLE, INCLUDING EDUCATED AND OTHERWISE SOPHISTICATED PEOPLE, FIND CHANGE SO THREATENING THAT THEY ATTEMPT TO DENY ITS EXISTENCE" 75

ALVIN TOFFLER
*FUTURE SHOCK*

## CREATE SUPPORTIVE MANAGERIAL ENVIRONMENT

- TOP LEVEL EXECUTIVES IN THE ORGANIZATION
- TRICKLE DOWN EFFECT
- SPECIAL EXECUTIVE/CLERICAL FUNCTIONAL SYSTEM

## GET THE ORGANIZATION READY

- EDUCATION
- HANDS-ON EXPERIENCE
- PILOT
- PHASED IMPLEMENTATION

## IMPLEMENTATION

- OBSTACLES
- APPROACH
- STRATEGY

## OBSTACLES TO IMPLEMENTATION

- INADEQUATE PLANNING
- FEAR OF CHANGE
- NO ONE SYSTEM OFFERS COMPREHENSIVE SET OF CAPABILITIES
- INADEQUATE POST IMPLEMENTATION EVALUATION

## APPROACH

- GET THE ORGANIZATION READY
- CREATE SUPPORTIVE MANAGERIAL ENVIRONMENT
- CHOOSE AN IMPLEMENTATION STRATEGY
- CONSIDER EXTERNAL ASSISTANCE

## IMPLEMENTATION STRATEGY

- MINIMIZE INVESTMENT
- MINIMIZE RISK
- GRADUAL INTRODUCTION-MAXIMIZE ACCEPTANCE
- CAPABILITIES INTRODUCED IN LOGICAL ORDER
- FEEDBACK FOR CONTINUOUS EVALUATION

PROCEDURES

- Format/Forms Completion
- Purchase requisitions/orders
- Budgets
- Plan review process
- Funding requests
- Appraisals
- Planning & Control Guidelines
- Records management
- Classified document control
- Training
- etc...

## WORD PROCESSING MANUAL

- PURPOSE
- CENTER PROCEDURES
- AUTHOR PROCEDURES
- ORIGINAL DICTATION
- PRERECORDED MATERIAL & FORMAT SAMPLES 83
- STORED MEDIA & MEDIA INDENTIFICATION
- SPECIAL REQUESTS
- LOGGING
- SUMMARY

## JOB TICKET
## CONTROL SHEET

Originator - Name
- Department
- Deadline
- Special Instructions

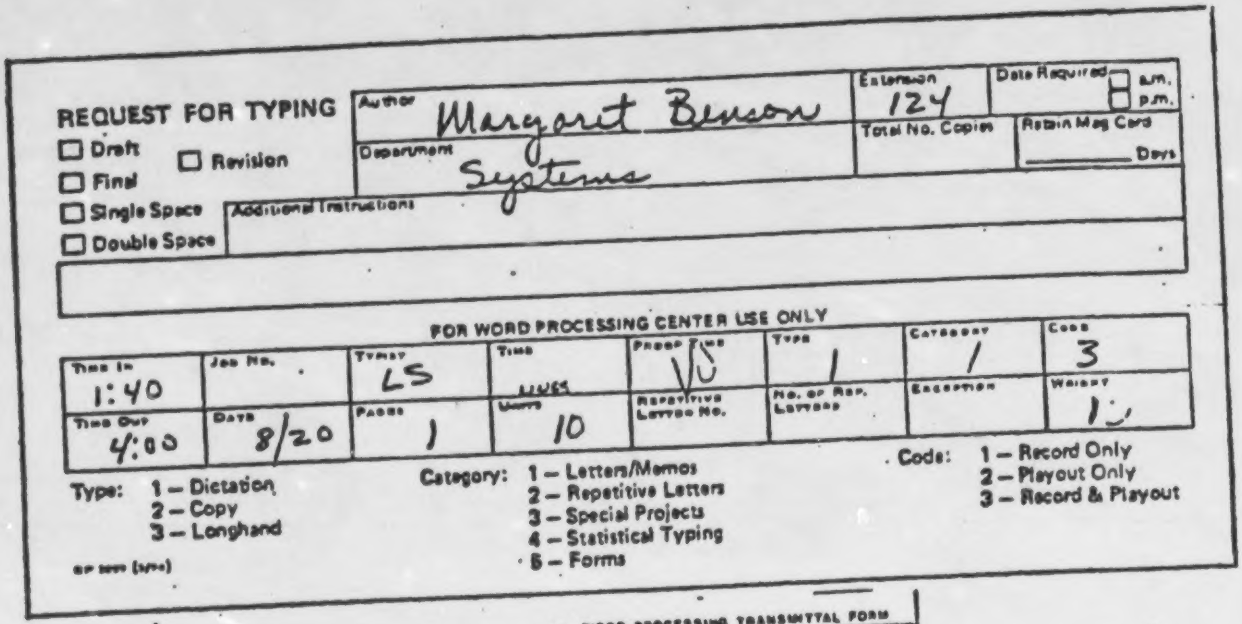
Supervisor - Job Number
- Time In
- Typist
- Draft/Revision

Typist - Media Number
- No. of Lines/Pages
- Time Out

## TYPING LOG

### TYPING LOG SHEET

| Document Code | Author's Initials | Input Code | Ret Req | Dest. Code | Pages | Lines | Typing Time |
|---|---|---|---|---|---|---|---|
| | | | | | | | |



**REQUEST FOR TYPING**

☐ Draft ☐ Revision
☐ Final
☐ Single Space
☐ Double Space

Author: Margarit Benson
Extension: 124
Date Required: ☐ a.m. ☐ p.m.
Department: Systems
Total No. Copies:
Retain Mag Card ______ Days
Additional Instructions:

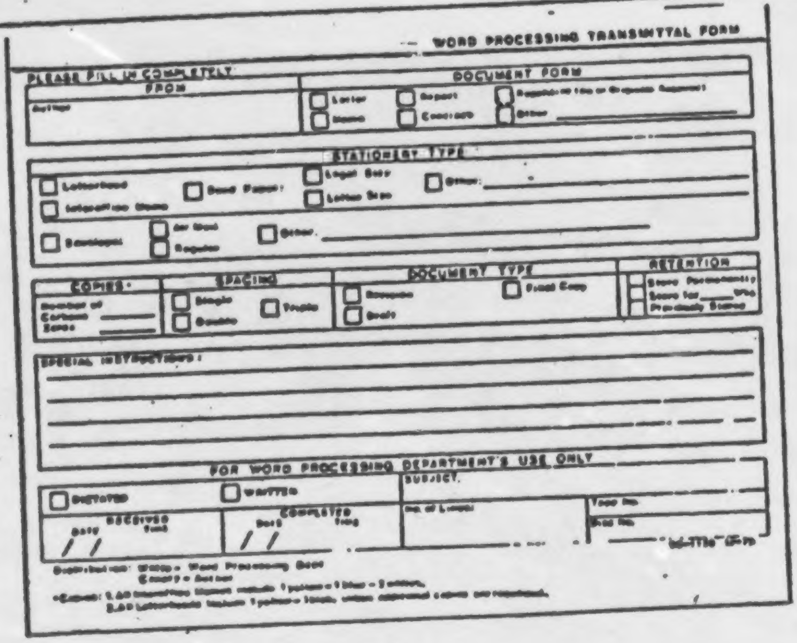
FOR WORD PROCESSING CENTER USE ONLY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Time In<br>1:40 | Job No. | Typist<br>LS | Time<br>LINES | Proof Time<br>VS | Type<br>1 | Category<br>1 | Code<br>3 |
| Time Out<br>4:00 | Date<br>8/20 | Pages<br>1 | Units<br>10 | Repetitive Letter No. | No. of Rep. Letters | Exception | Weight<br>1 |

Type: 1 — Dictation
2 — Copy
3 — Longhand

Category: 1 — Letters/Memos
2 — Repetitive Letters
3 — Special Projects
4 — Statistical Typing
5 — Forms

Code: 1 — Record Only
2 — Playout Only
3 — Record & Playout



WORD PROCESSING TRANSMITTAL FORM

PLEASE FILL IN COMPLETELY

FROM

DOCUMENT FORM

STATIONERY TYPE

COPIES

SPACING

DOCUMENT TYPE

RETENTION

SPECIAL INSTRUCTIONS:

FOR WORD PROCESSING DEPARTMENT'S USE ONLY

SUBJECT.

☐ DICTATED ☐ WRITTEN

RECEIVED Date Time

COMPLETED Date Time

## ASSIGNMENT OF JOB CONTROL NUMBER

There are many ways to control work flow. Here is one example:

**Signal Dot Method**

There are now available from most stationery suppliers self-sticking, consecutively numbered, brightly colored, removable discs . . . called signal dots. These signal dots lend themselves to job control.

Each work folder requires a job number for easy retrieval and identification. This is the number you enter in the . Log.

By affixing these numbered signal dots to the upper right-hand corner of your work folder during the Isolation/Identification step, you have accomplished the following:

. . . . clearly identified the unit of work

. . . . given your system visual control

. . . . impressed on your workers the need for accountability

Be sure to remove signal dot when job is completed.

INTERESTING NOTE: Signal dots can also be used to give visual display of backlog situations.

HOW?

First, divide day into color-coded work periods. For example:

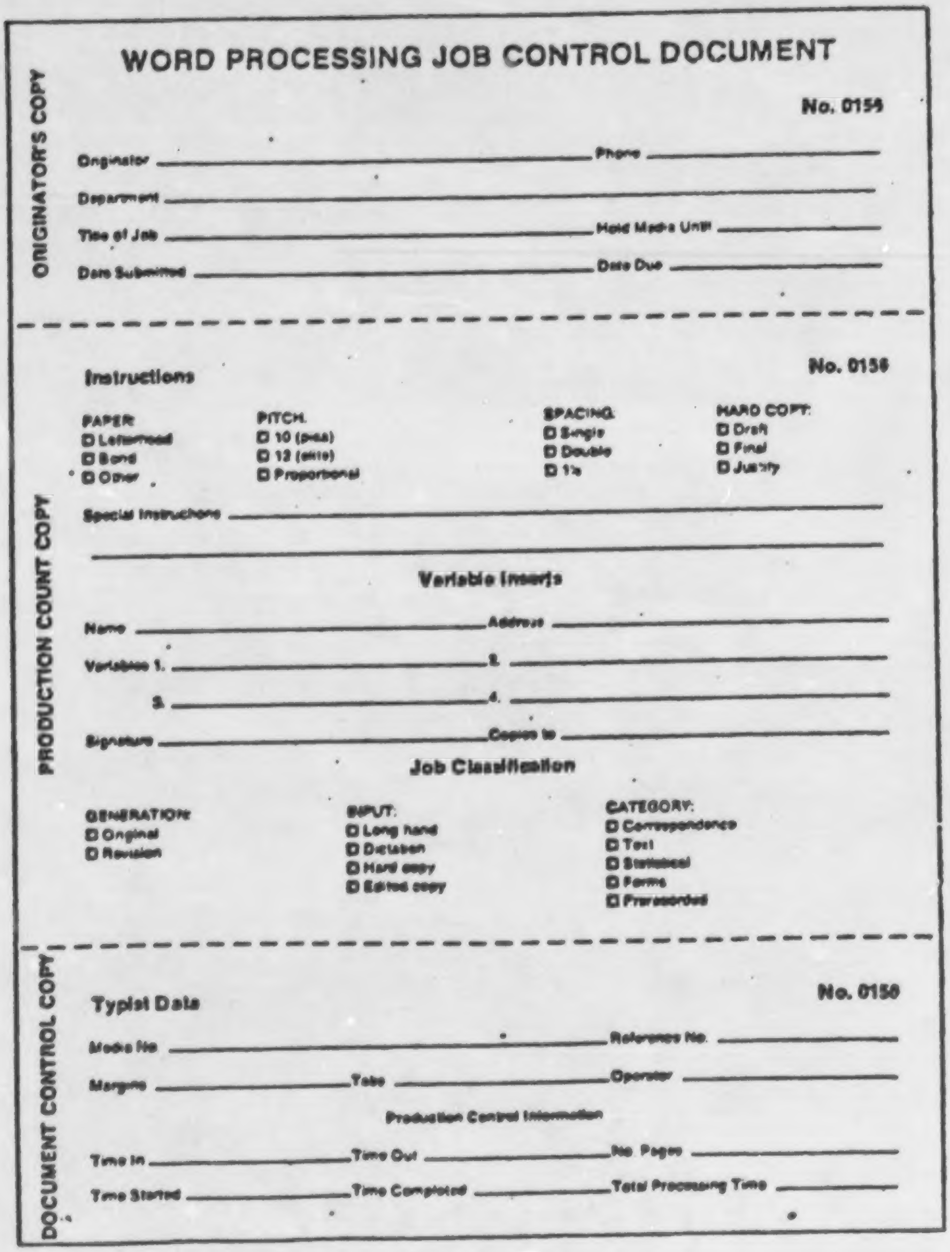
9:00 AM to 10:00 AM — Blue Period
10:00 AM to 11:00 AM — Red Period
11:00 AM to 12:00 PM — White Period
12:00 PM to 2:00 PM — Yellow Period
2:00 PM to 3:00 PM — Double-Blue Period
3:00 PM to 4:00 PM — Double-Red Period
4:00 PM to 5:00 PM — Double-White Period
5:00 PM to 9:00 PM — Double-Yellow Period

Then, during Isolation/Identification step, affix unnumbered signal dots to work folder in accordance with time code.

As work enters distribution step and transcription phase, you can readily spot backlog problems.

EXAMPLE:

Transcriptionists are working with folders of yellow period, and one still has a blue period folder. You can spot this condition as you supervise your department.



ORIGINATOR'S COPY

## WORD PROCESSING JOB CONTROL DOCUMENT

No. 0159

Originator ______________________ Phone ______________
Department ______________________________________
Title of Job ______________________ Hold Media Until ______________
Date Submitted ______________________ Date Due ______________

PRODUCTION COUNT COPY

No. 0158

**Instructions**

PAPER:
☐ Letterhead
☐ Bond
☐ Other

PITCH:
☐ 10 (pica)
☐ 12 (elite)
☐ Proportional

SPACING:
☐ Single
☐ Double
☐ 1½

HARD COPY:
☐ Draft
☐ Final
☐ Justify

Special Instructions ______________________________________
______________________________________________

**Variable Inserts**

Name ______________________ Address ______________________
Variables 1. ______________________ 2. ______________________
3. ______________________ 4. ______________________
Signature ______________________ Copies to ______________________

**Job Classification**

GENERATION:
☐ Original
☐ Revision

INPUT:
☐ Long hand
☐ Dictation
☐ Hard copy
☐ Edited copy

CATEGORY:
☐ Correspondence
☐ Text
☐ Statistical
☐ Forms
☐ Prerecorded

DOCUMENT CONTROL COPY

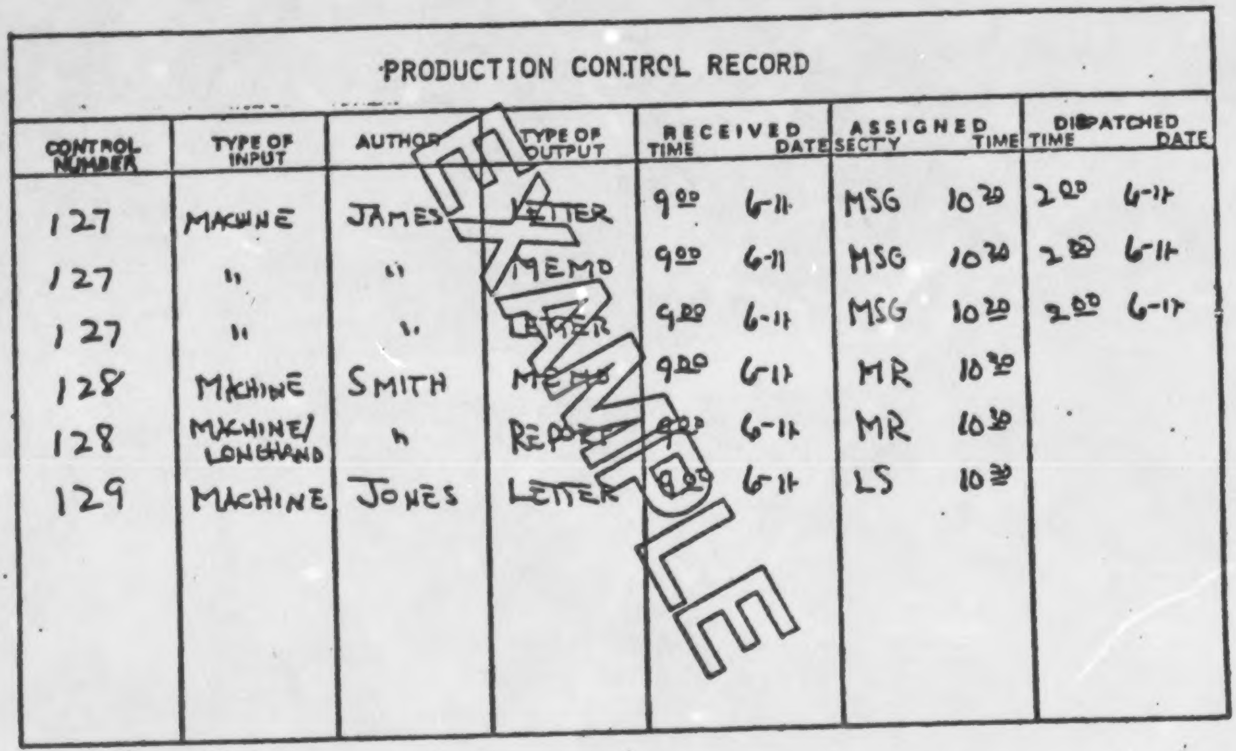
No. 0158

**Typist Data**

Media No. ______________________ Reference No. ______________
Margins ______________ Tabs ______________ Operator ______________

Production Control Information

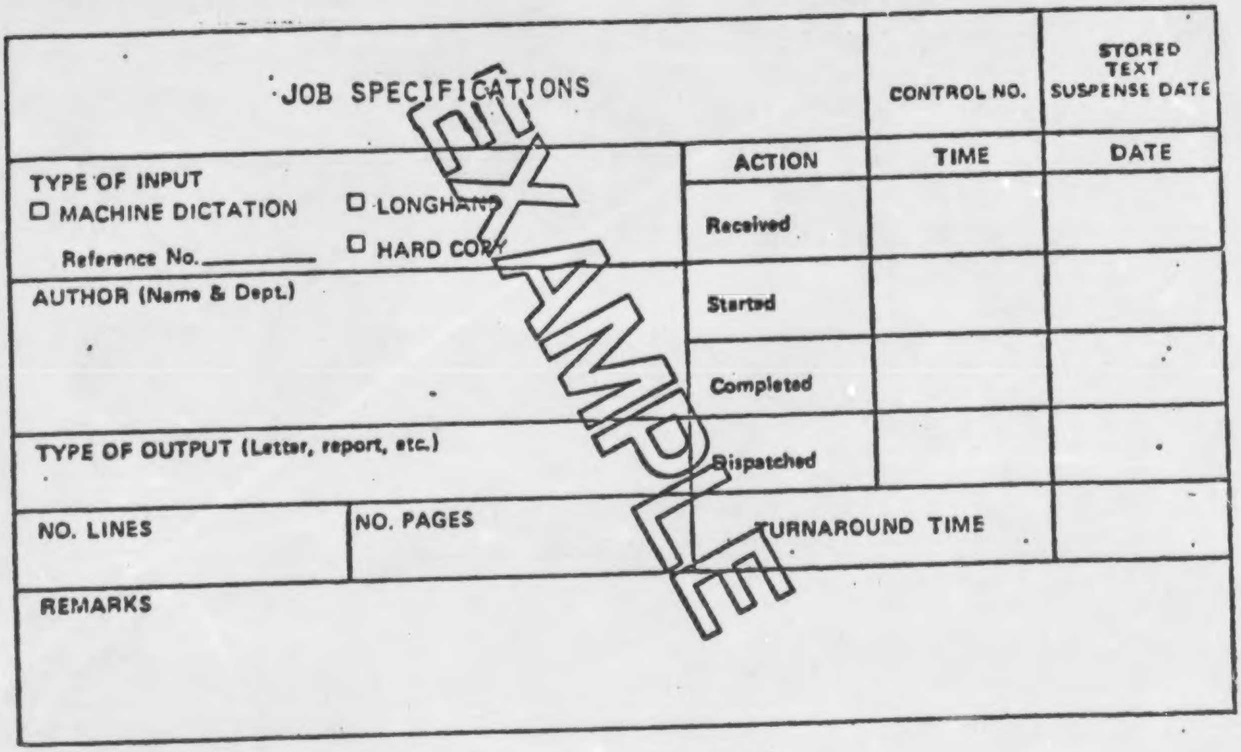
Time In ______________ Time Out ______________ No. Pages ______________
Time Started ______________ Time Completed ______________ Total Processing Time ______________



PRODUCTION CONTROL RECORD

| CONTROL NUMBER | TYPE OF INPUT | AUTHOR | TYPE OF OUTPUT | RECEIVED TIME | RECEIVED DATE | ASSIGNED SECT'Y | ASSIGNED TIME | DISPATCHED TIME | DISPATCHED DATE |
|---|---|---|---|---|---|---|---|---|---|
| 127 | MACHINE | JAMES | LETTER | $9^{00}$ | 6-11 | MSG | $10^{20}$ | $2^{00}$ | 6-11 |
| 127 | " | " | MEMO | $9^{00}$ | 6-11 | MSG | $10^{20}$ | $2^{00}$ | 6-11 |
| 127 | " | " | LETTER | $9^{00}$ | 6-11 | MSG | $10^{20}$ | $2^{00}$ | 6-11 |
| 128 | MACHINE | SMITH | MEMO | $9^{00}$ | 6-11 | MR | $10^{30}$ | | |
| 128 | MACHINE/ LONGHAND | " | REPORT | $9^{00}$ | 6-11 | MR | $10^{30}$ | | |
| 129 | MACHINE | JONES | LETTER | $9^{00}$ | 6-11 | LS | $10^{30}$ | | |

EXAMPLE



| | | | | |
|---|---|---|---|---|
| JOB SPECIFICATIONS | | | CONTROL NO. | STORED TEXT SUSPENSE DATE |
| TYPE OF INPUT<br>☐ MACHINE DICTATION ☐ LONGHAND<br>Reference No. ________ ☐ HARD COPY | | ACTION | TIME | DATE |
| | | Received | | |
| AUTHOR (Name & Dept.) | | Started | | |
| | | Completed | | |
| TYPE OF OUTPUT (Letter, report, etc.) | | Dispatched | | |
| NO. LINES | NO. PAGES | TURNAROUND TIME | | |
| REMARKS | | | | |

EXAMPLE

## DAILY TYPING AND NONTYPING LOG

NAME

POSITION

SUPERVISOR'S NAME

ORGANIZATIONAL ELEMENT

DATE

| TASK NO. | TASK | PRINCIPAL | NON-TYPING | TYPING | | | | | ☐ PAGES<br>☐ LINES | TIME (Minutes) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ORIGINAL | | | REVISION | REPETITIVE | | TYPING | NON-TYPING |
| | | | | LONG-HAND | SHORT-HAND | DICT. MACHINE | | | | | |
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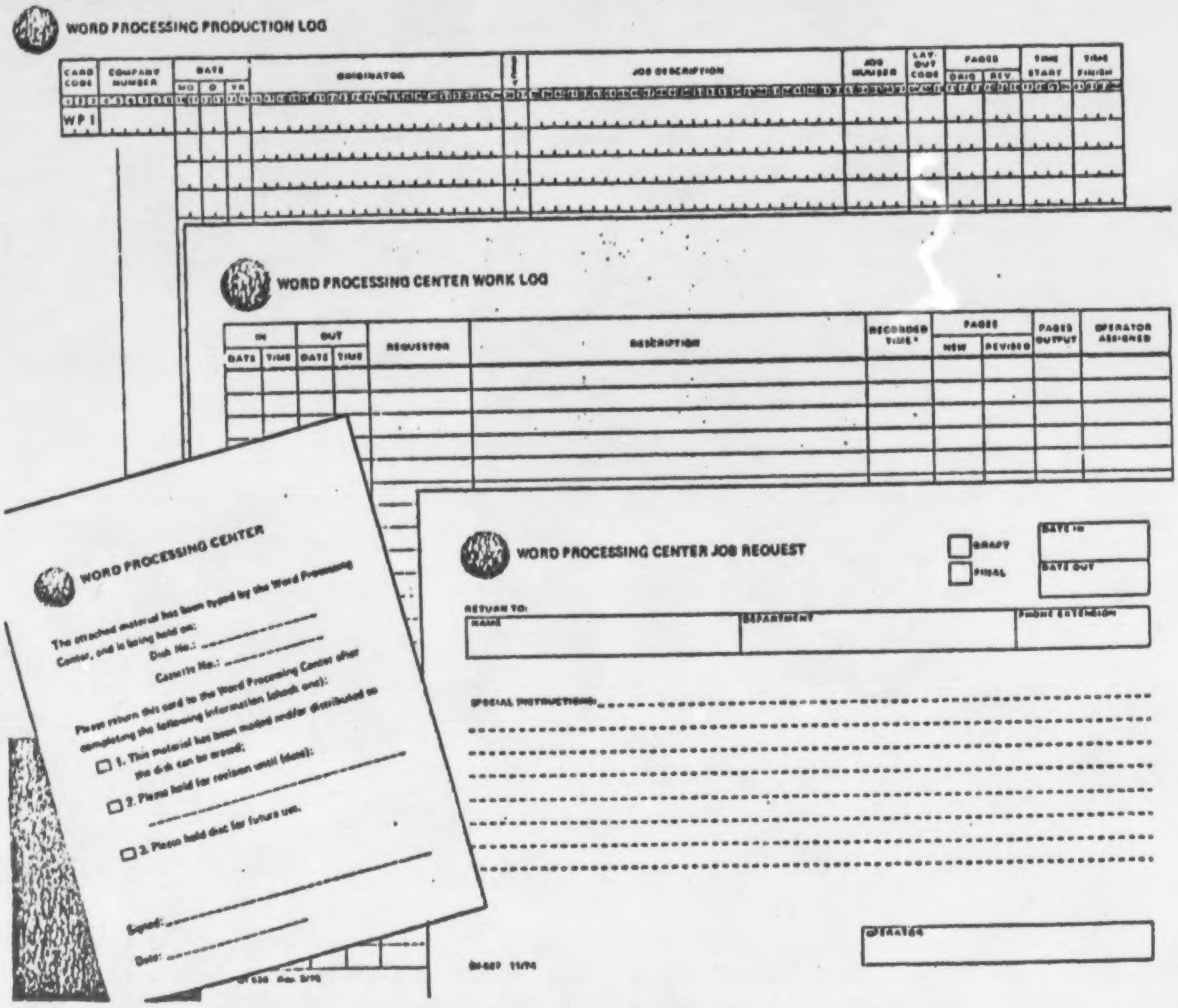
GSA DC 75.4542

OPTIONAL FORM 147
NOVEMBER 1974



WORD PROCESSING PRODUCTION LOG

| CARD CODE | COMPANY NUMBER | DATE | | | ORIGINATOR | | JOB DESCRIPTION | JOB NUMBER | LAY-OUT CODE | PAGES | | TIME START | TIME FINISH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MO | D | YR | | | | | | ORIG | REV | | |
| WP1 | | | | | | | | | | | | | |
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WORD PROCESSING CENTER WORK LOG

| IN | | OUT | | REQUESTOR | DESCRIPTION | RECORDED TIME* | PAGES | | PAGES OUTPUT | OPERATOR ASSIGNED |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE | TIME | DATE | TIME | | | | NEW | REVISED | | |
| | | | | | | | | | | |
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WORD PROCESSING CENTER

The attached material has been typed by the Word Processing Center, and is being held on:

Disk No.: ____________

Cassette No.: ____________

Please return this card to the Word Processing Center after completing the following information (check one):

☐ 1. This material has been mailed and/or distributed so the disk can be erased;

☐ 2. Please hold for revision until (date): ____________

☐ 3. Please hold disc for future use.

Signed: ____________

Date: ____________

WORD PROCESSING CENTER JOB REQUEST

☐ DRAFT
☐ FINAL

DATE IN
DATE OUT

RETURN TO:

| NAME | DEPARTMENT | PHONE EXTENSION |
|---|---|---|
| | | |

SPECIAL INSTRUCTIONS: ------------------------------------------------

OPERATOR

46400001

## WORD PROCESSING DAILY PRODUCTION LOG

NAME ______

| TIME IN<br>DATE<br>MM DD | TIME IN<br>TIME<br>HH MM | DOC. CODE | AUTHOR'S INITIALS | UNIT CODE | DESCRIPTION | INPUT CODE | LINES | TYPING TIME (Min.) | TIME OUT<br>DATE<br>MM DD | TIME OUT<br>TIME<br>HH |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 8 | 9 12 | 13 15 | 16 18 | 19 21 | 22 43 | 44 45 | 46 49 | 50 52 | 53 56 | 57 |
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### TIME CONVERSION TABLE

1 P.M. = 13
2 P.M. = 14
3 P.M. = 15
4 P.M. = 16
5 P.M. = 17
6 P.M. = 18
7 P.M. = 19
8 P.M. = 20
9 P.M. = 21
10 P.M. = 22
11 P.M. = 23
12 P.M. = 24

### INPUT CODES

| | | | |
|---|---|---|---|
| DICTATION | MD | LONGHAND | LH |
| COPY/FILE | CF | REVISION | RV |
| PRE-RECORD | PR | | |

# MONTHLY PRODUCTION REPORT

Month of SEPT. 197

| UNIT NAME | UNIT CODE | DICTATION | | | LONGHAND | | | REVISIONS | | | COPY TYPE / FILE COPY | | | PRE-RECORDED | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LINES | % of Cate. | % of Total | LINES | % of Cate. | % of Total | LINES | % of Cate. | % of Total | LINES | % of Cate. | % of Total | LINES | % of Cate. | % of Total | LINES | Mn |
| BUSINESS DEVELOPMENT | 609 | 4,071 | 22.1 | 7.4 | 2,250 | 56.5 | 4.1 | 565 | 63.1 | 1.0 | 300 | 80. | .5 | 2,750 | 8.7 | 5.0 | 9,936 | |
| TRUST TAX | 641 | 344 | 1.9 | .6 | 118 | 3.0 | .2 | | | | | | | 225 | .7 | .4 | 687 | |
| TRUST ADMINISTRATION | 621 | 8,462 | 46. | 15.3 | 1,119 | 28.1 | 2.0 | 175 | 19.5 | .3 | 25 | 7.7 | 0 | 999 | 3.2 | 1.8 | 10,780 | |
| ESTATE SETTLEMENT | 623 | 3,501 | 19. | 6.3 | 98 | 2.5 | .2 | 78 | 8.7 | .2 | | | | 2,777 | 8.7 | 5.0 | 6,454 | |
| TRUST MANAGEMENT | 601 | 417 | 2.3 | .8 | 301 | 7.6 | .5 | 78 | 8.7 | .2 | 35 | 9. | 0 | 465 | 1.5 | .9 | 1,296 | |
| SYSTEMS + METHODS | 221 | 972 | 5.3 | 1.8 | 66 | 1.6 | .1 | | | | 15 | 4. | 0 | 1,283 | 4.0 | 2.3 | 2,336 | |
| PERSONNEL DEPT. | 242 | | | | | | | | | | | | | 2,739 | 8.6 | 5.0 | 2,739 | |
| MARKETING | | | | | | | | | | | | | | 14,496 | 45.7 | 26.2 | 14,496 | |
| TRUST INVESTMENTS | 631 | 619 | 3.4 | 1.1 | 17 | .4 | 0 | | | | | | | 20 | 0 | 0 | 656 | |
| TRUST OPERATIONS | 654 | | | | 10 | .3 | 0 | | | | | | | | | | 10 | |
| CORPORATE TRUST | 655 | | | | | | | | | | | | | 6,007 | 18.9 | 10.8 | 6,007 | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| TOTAL | | 18,386 | 100. | 33.2 | 3,979 | 100. | 7.2 | 896 | 100. | 1.6 | 375 | 100. | .7 | 31,761 | 100. | 57.3 | 55,397 | |

# MOVING INFORMATION — CONCEPTS IN TRANSITION

Charles Norris, Moderator
Senior Market Researcher
International Data Corporation

Anne Mayfield
Consultant
Arthur D. Little, Inc.

Brian Blackmarr
Principal
Lifson, Herrmann, Blackmarr & Harris

Linda O'Keeffe
Project Manager for Advanced Office Systems
Valley National Bank

*Level II*
*Tuesday Afternoon*
*June 24, 1980*

## Moving Information: Concepts in Transition

SYNTOPICAN VIII -- LEVEL II PANEL -- June 24, 1980 Minneapolis, Minn.

Charles I. Norris (Moderator)
INTERNATIONAL DATA CORPORATION
214 Third Avenue
Waltham, Massachusetts 02254

THE INTEGRATION OF DATA PROCESSING AND OFFICE AUTOMATION EQUIPMENT THROUGH TELECOMMUNICATIONS IS ONE OF THE MOST IMPORTANT DEVELOPMENTS IN THE INFORMATION PROCESSING INDUSTRY IN THE 80S.

WE ARE ENTERING A NEW ELECTRONIC INFORMATION AGE IN WHICH INFORMATION WILL INCREASINGLY BE TRANSMITTED AND PROCESSED BY ELECTRONIC METHODS. WE ARE SEEING FILING CABINETS REPLACED BY ELECTRONIC DATA BANKS, PAPER DOCUMENTS REPLACED BY STREAMS OF BINARY DIGITS, AND INSTANTANEOUS DELIVERY SERVICE PROVIDED BY TELEPHONE NETWORKS 24 HOURS A DAY. WE ARE SEEING AN EVOLUTION IN THE OFFICE FROM STANDALONE TYPEWRITERS, PAPER FILES, AND SEPARATE TELECOMMUNICATIONS INTO A DATA COMMUNICATIONS NETWORK THAT WILL CONNECT WORD PROCESSORS, DATA PROCESSING TERMINALS, TELEPHONES, AND SHARED ELECTRONIC FILES. THIS IS MUCH MORE THAN "ELECTRONIC MAIL" IT IS TRULY THE BEGINNINGS OF A NEW WAY OF TRANSACTING BUSINESS CONSISTENT WITH THE PROGRESS IN COMPUTER TECHNOLOGY.

WHAT I AM REFERRING TO HERE IS THE CELEBRATED OFFICE OF THE FUTURE -- WHICH I PREFER TO CALL THE AUTOMATED OR DIGITAL OFFICE. THIS AUTOMATED/DIGITAL OFFICE WILL NOT COME ABOUT OVERNIGHT BUT BY THE END OF THE 80S IDC EXPECTS THE MARKET FOR THESE PRODUCTS TO BE LARGER THAN TODAY'S DP MARKET.

SYSTEM INTEGRATION THROUGH COMMUNICATIONS IS OCCURRING FOR SEVERAL REASONS:

I. NEED FOR GREATER COST EFFECTIVESNESS IN THE OFFICE

LAST YEAR U.S. BUSINESS IS BELIEVED TO HAVE SPENT $800 BILLION ON OFFICE OPERATIONS -- OF THAT $600 BILLION OR 75% WAS A DIRECT COST OF COMPENSATION AND FRINGE BENEFITS.

o

OVERALL DOLLARS SPENT ON SALARIES AND BENEFITS IS INCREASING 10%-15% PER YEAR.

o

AND EVEN MORE IMPORTANT -- 77% OF THE $600 BILLION IN LABOR RELATED OFFICE COSTS -- WAS PAID TO THE WHITE OR EXPENSIVE COLLAR -- MANAGERS, PROFESSIONALS, AND EXECUTIVES.

o

THIS GROUP GREW BY 53% FROM 1960-1976 COMPARED TO 35% GROWTH FOR THE WORK FORCE OVERALL.

o

CLEARLY, ANYTHING THAT CAN HELP TO MAKE THIS EXPENSIVE AND GROWING GROUP OF PEOPLE MORE EFFECTIVE THROUGH GREATER REACH, FASTER ACCESS TO INFORMATION, QUICKER REACTION TIME, AND IMPROVED CONTROL SHOULD BE OF INTEREST TO BUSINESSES WHO ARE TRYING TO CONTROL THEIR COSTS AND IMPROVE THEIR OPERATIONS.

II. TECHNOLOGY -- WHILE LABOR COSTS ARE RISING THE COST OF TECHNOLOGY IS DECLINING (ACCORDING TO UHLIE, FARBER, AND BAIR IN THEIR BOOK THE OFFICE OF THE FUTURE.) THE COST OF COMPUTER LOGIC CIRCUITS IS EXPECTED TO DROP BY A FACTOR OF MORE THAN 20 or 25% PER YEAR FROM 1978 TO 1988 -- COMPUTER MEMORY IS EXPECTED TO DROP BY A FACTOR OF 170 OR 40% A YEAR OVER THE SAME PERIOD. THE UNDERLYING TECHNOLOGY IS SUCH THAT THESE TRENDS SHOULD CONTINUE FOR SEVERAL DECADES.

- COMMUNICATIONS TECHNOLOGY IS EXPECTED TO DROP ONLY BY A FACTOR OF 3 OR 11% A YEAR -- BUT AS SOCIETY BECOMES MORE "INFORMATION INTENSIVE" THE NEED TO ACCESS AND COMMUNICATE DATA WILL BECOME MORE AND MORE IMPORTANT AND SATELLITES, FIBER OPTICS, AND LASER SCANNING SYSTEMS WILL ALL CONTRIBUTE TO FASTER AND LESS EXPENSIVE COMMUNICATIONS. 109
- THE SIZE OF EQUIPMENT IS SHRINKING -- THE MICROPROCESSOR IS GIVING US INCREASED FUNCTION IN MEMORY AND LOGIC AND ALLOWING FOR SOFTWARE PROGRAMMABILITY WHICH LEADS TO MODULAR PLANNING SO THAT MULTIFUNCTIONAL EQUIPMENT CAN BE DESIGNED AND TAILORED FOR AN INDIVIDUAL"S SPECIFIC REQUIREMENTS AND INSTALLED ON HIS DESK WITHOUT BEING OBTRUSIVE OR INTIMIDATING (WORKSTATION)

FINALLY -- THE NEED TO KNOW

I MENTIONED THE FACT THAT SOCIETY IS BECOMING MORE "INFORMATION INTENSIVE." VIRTUALLY ANY MEASURE YOU LOOK AT, E.G., THE NUMBER OF PAGES PRINTED IN PROFESSIONAL SOCIETY JOURNALS OR THE NUMBER OF PAGES PRINTED

BY THE PUBLISHERS OF THE WORLD INDICATES THAT THE AMOUNT OF INFORMATION IN PRINT IS INCREASING AT AN EXPONENTIAL RATE.

HARRY NEWTON, PRESIDENT OF THE TELECOM LIBRARY, GAVE AN EXAMPLE AT A RECENT IDC EXECUTIVE CONFERENCE. HE SAID THAT IF YOU PUT A DIME ON THE GROUND TODAY AND LET THAT REPRESENT THE TOTAL AMOUNT OF INFORMATION AVAILABLE TODAY, BY THE END OF OUR LIFETIME THAT DIME WOULD GROW TO A STACK AS HIGH AS THE WASHINGTON MONUMENT.

(ESTIMATED THAT MANAGERS AND EXECUTIVES MAKE SOME 100 INFORMATION TRANSACTIONS A DAY.)

COMPUTER TECHNOLOGY ITSELF HAS OBVIOUSLY CONTRIBUTED TO THIS INFORMATION EXPLOSION -- BUT THE PROBLEM NOW IS TO ORGANIZE IT AND MAKE IT READILY ACCESSIBLE TO THOSE WHO NEED IT FOR INFORMED DECISION MAKING.

#1. TO SATISFY EXTERNAL DEMANDS FROM GOVERNMENT REGULATORY BODIES AND OTHER AGENCIES WHO ARE REQUIRING MORE AND MORE INFORMATION FROM BUSINESS AND 2. TO SATISFY INTERNAL DEMAND FOR THE MANAGERS, EXECUTIVES, AND OTHER PROFESSIONALS WHO ARE THE PROBLEM SOLVERS, PLANNERS, AND POLICY PEOPLE. THESE PEOPLE NEED TO COLLECT INFORMATION FROM MANY SOURCES, SYNTHESIZE IT, ADD THEIR CREATIVE INPUT, AND PRODUCE A RESULT -- A STRATEGY, CONCEPT, DIRECTIVE, APPROACH, OR ASSESSMENT WHICH IN TURN CAN BE COMMUNICATED TO THE APPROPRIATE PEOPLE FOR ACTION OR REVISION.

THERE ARE TWO KEY POINTS HERE:

1. THE REAL GAINS TO BE ACHIEVED ARE IN INCREASED PRODUCTIVITY AT THE MANAGEMENT LEVEL RATHER THAN THE CLERICAL OR ADMINISTRATIVE SUPPORT LEVEL.
2. THE INFORMATION PROCESSING ENVIRONMENT THAT IS EVOLVING IS BASED ON THE RECOGNITION THAT THE FORM IN WHICH INFORMATION ORIGINATES -- AS CHARACTERS, OR NUMBERS ON PAPER, SPOKEN WORDS, OR DIGITIZED BITS ON MAGNETIC MEDIA -- IS NOT NECESSARILY THE BEST WAY TO TRANSMIT THAT INFORMATION NOR THE FORM IN WHICH THE END USER NEEDS THAT INFORMATION. COMPANIES ARE ALSO RECOGNIZING THAT GETTING THE INFORMATION TO THE END USER IN THE FORM HE NEEDS IT IN AND IN THE TIME HE NEEDS IT IN SHOULD NOT REQUIRE EXTRA STEPS 111 THAT REPEAT EARLIER MOTIONS OR DEMAND THAT HE OR SHE INTERUPT EVERYTHING ELSE TO RESPOND. FOR EXAMPLE, FAX OR CWP BASED ELECTRONIC MAIL CAN FACILITATE THE GATHERING AND EXCHANGE OF INFORMATION WITHOUT THE IRRITATION AND INTERRUPTION OF THE TELEPHONE -- RESEARCH INDICATES AND MY EXPERIENCE CONFIRMS THAT SOME 75% OF ALL TELEPHONE CALLS ARE FRUITLESS. (PHONE TAG)

(INFO -- A CORPORATE ASSET TO BE MANAGED LIKE ANYOTHER CORPORATE ASSET.)

INFORMATION PROCESSING IS BEING LOOKED AT AS A SEAMLESS PROCESS--IN WHICH DOCUMENTS, MESSAGES, AND DATA ARE CONSTANTLY BEING CREATED, COMMUNICATED, STORED, RETRIEVED, REVISED, AND RECONSTITUTED. ORGANIZATIONS ARE BEGINNING TO REALIZE THAT A PIECE OF INFORMATION IS A PIECE OF INFORMATION AND THAT HOW IT IS STORED, PROCESSED, AND

DISTRIBUTED MAY BE PART OF ONE PROBLEM AND ONE SET OF SOLUTIONS. ANOTHER WAY TO PUT IT IS THAT DP, WP, AND COMMUNICATIONS HAVE PARALLEL MISSIONS.

- TO PROVIDE INFORMATION WHEN IT IS NEEDED, WHERE IT IS NEEDED IN THE FORMAT IT IS NEEDED IN.

THIS IS REAL PROGRESS FROM THREE-FOUR YEARS AGO WHEN INCOMPATIBLE EQUIPMENT OPERATED IN A STANDALONE ENVIRONMENT IN SELF-CONTAINED SLOTS

- COMPUTERS WERE IN THE COMPUTER ROOM
- FAX WAS NEXT TO THE TELETYPE MACHINE
- WP WAS CENTRALIZED
- TERMINALS WERE FOR DP
- AND COMMUNICATIONS EQUIPMENT WAS LIMITED TO WHAT OTHER MACHINES IT COULD TALK TO.

I AM TALKING ABOUT AN INTEGRATED "SYSTEMS" APPROACH NOW AND WE ARE BEGINNING TO SEE OFFERINGS FROM VENDORS SUCH AS WANG, XEROX, DATAPOINT, PRIME, AND OTHERS WHICH INDICATE WHERE WE ARE HEADED.

MY IMPRESSION IS THAT WE HAVE A VENDOR DRIVEN MARKET AT PRESENT AND USERS HAVE TO CATCH UP WITH TECHNOLOGY. MUCH MORE WILL HAVE TO BE DONE IN TERMS OF MESSAGE SWITCHING TO CONTROL COMMUNICATIONS TRAFFIC AND ACT AS INTERFACES TO ROUTE INFORMATION AMONG A VARIETY OF EQUIPMENT. STORE AND FORWARD DEVICES (INTEGRATAL TO THE COMMUNICS DEVICES OR CONTAINED IN CENTRAL MESSAGE SWITCHES OR BOTH) TO HOLD MESSAGES IN DIGITIZED FORM FOR DELIVERY WITHIN USER DETERMINED TIME FRAMES WILL ALSO BE IMPORTANT TO

MAXIMIZE USER PRODUCTIVITY AND MAKE THE MOST COST-EFFECTIVE USE OF EQUIPMENT AND COMMUNICATIONS LINES.

A MESSAGE WHICH ORIGINATES ON PAPER CAN BE CONVERTED TO ELECTRONIC
SIGNALS, ON A KEYBOARD OF A CWP OR ELECTRONIC TW -- A DIGITAL FAX MACHINE
OR OTHER TERMINAL DEVICE AND THEN ROUTED THROUGH THE MESSAGE SWITCH TO A
WP, INTELLIGENT COPIER, MINICOMPUTER, OR OTHER DEVICE FOR OUTPUT ON
PAPER, ON A DISPLAY SCREEN OR HELD IN MAGNETIC MEDIA STORAGE. VOICE MAIL
IS ANOTHER POSSIBILITY WHICH IS FURTHER DOWN THE LINE. THE KEY HERE IS
COMPATIBLE COMMUNICATIONS AMONG DIFFERENT SYSTEMS AND IDC PREDICTS THAT
MOST OF THE PROBLEMS WILL BE IRONED OUT BY THE MID 80S SO THAT USERS WILL
BE ABLE TO DESIGN WORKSTATIONS WITH THE NECESSARY AND APPROPRIATE MODULES 113
FOR EACH STATION. AS I MENTIONED BEFORE THE REAL POSITIVE IMPACT OF
OFFICE AUTOMATION WILL BE ON MANAGEMENT PRODUCTIVITY -- THIS MEANS THAT
MANAGEMENT PLANNED WORKSTATIONS WILL HAVE TO COME TO THE MARKET -- BUT
THERE ARE SOME SERIOUS BEHAVORIAL AS WELL AS TECHNICAL PROBLEMS TO BE
OVERCOME IN THIS AREA BEFORE THE MANAGEMENT WORKSTATION CAN BECOME A
REALITY.

FIRST OF ALL -- MANAGERS ARE USED TO DEALING DIRECTLY WITH PEOPLE. TASKS THAT INVOLVE USING EQUIPMENT ARE USUALLY DELEGATED. FOR MANY THERE IS A STIGMA ATTACHED TO USING A KEYBOARD, A COPIER, OR A COMMUNICATIONS TERMINAL. WHAT IS NEEDED HERE IS SOME VERY CAREFUL ANALYSIS OF THE MANAGERS FUNCTION AND INORMATION NEEDS AND SOME EVEN MORE CAREFUL DESIGN SO THAT THE NEEDS AND REQUIREMENTS OF THOSE WHO ARE EXPECTED TO USE THESE WORKSTATIONS ARE MET.

1. THE EQUIPMENT MUST BE EASY TO LEARN. ACCESS MUST BE STREAMLINED. THE KEYBOARD OF THE TYPICAL CWP WILL NOT DO -- A SINGLE KEYBOARD USED FOR TELEPHONE, COMPUTER, WORD PROCESSING, AND CODING ORGANIZED FOR ONE-HANDED OPERATIONS IS A POSSIBILITY -- A TOUCH SENSITIVE PAD THAT RECOGNIZES HANDWRITTEN CHARACTERS AND TRANSLATES THEM INTO DIGITAL LANGUAGE IS ANOTHER. VOICE OPERATED EQUIPMENT IS ANOTHER BUT MORE REMOTE POSSIBILITY.
2. THE EQUIPMENT MUST BE COMPACT. ALL THE COMPONENTS SHOULD BE ASSEMBLED IN A PACKAGE THAT WOULD FIT NEATLY ONTO A PEDESTAL ON AN EXECUTIVE DESK.
3. FINALLY, THE WORKSTATION MUST BE DESIGNED TO DELIVER INFORMATION THAT IS STRUCTURED TO THE REQUIREMENTS OF THE EXECUTIVE USER. A DISPLAY SCREEN TO CALL UP MESSAGES THAT HAVE ARRIVED, TO CHECK APPOINTMENT SCHEDULES, TO COMPOSE BRIEF MESSAGES, AND DISPLAY INFORMATION EXTRACTED FROM MAGNETIC MEDIA OR MICROFILM FILES IS THE MOST LIKELY COMPONENT -- ACCESS TO SOME FORM OF HARDCOPY PAPER OUTPUT WILL STILL BE NECESSARY -- BUT EACH WORKSTATION MAY NOT REQUIRE ITS OWN PRINTER.

IF THE EQUIPMENT IS WELL DESIGNED, ACCESSIBLE, AND EASY TO OPERATE MANAGERS WILL BEGIN TO USE IT AND WONDER HOW THEY EVER GOT ALONG WITHOUT IT BEFORE AND AS THE YOUNG PEOPLE TODAY WHO ARE GROWING UP WITH COMPUTERS IN SCHOOL AND COMPUTER GAMES BEGIN TO GROW INTO POSITIONS OF RESPONSIBILITY, THE ADOPTION OF THESE DEVICES SHOULD ACCELERATE.

THE 80S PROMISE TO BE AN EXCITING DECADE AS COMPUTER AND COMMUNICATIONS TECHNOLOGY COMBINE TO AUTOMATE AND INTEGRATE THE OFFICE. I AM HAPPY TO BE INVOLVED IF ONLY AS A WATCHER. NOW LET'S HEAR FROM SOME PEOPLE WHO ARE ON THE FIRING LINE.

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# DYNAMICS OF WP PRESENTATIONS

# TO

# SENIOR MANAGEMENT

Don Bentley
Partner
Duffy and Bentley Consulting Group

*Level I*
*Wednesday Morning*
*June 25, 1980*

## DYNAMICS OF PRESENTATIONS TO SENIOR MANAGEMENT --

Word Processing professionals are promoting concepts and technologies which are often misunderstood by senior management. However, it is often the Word Processing Professional who must act as the catalyst for change which is required if organizations are to derive substantial benefits from the implementation of Word Processing equipment and related technologies.

There are a number of factors influencing change e.g.

- Predisposition
- Insecurity
- Cultural Beliefs/Norms
- Trust
- Past Events
- Apprehensions
- Expectations
- Type of Change

Introducing change to management who may not realize or agree that there is a need for change requires planning, empathy and, in some cases, persistent effort. In addition, it requires courage, imagination, foresight, initiative and resourcefulness.

Management who readily accept change and are fully cognisent of benefits that may be derived from the implementation of automated equipment will require good documentation and a positive plan before supporting recommendations for change.

In order to "prepare a case" for the recommended implementation of a new or upgraded Word Processing System or obtain approval to conduct a Feasibility Study, there are a number of factors that must be considered and included in data presented to management. e.g.

1. CONCEPTS:

   Word Processing means all things to all people. Management should be made aware of the alternatives available and specifically how the concept applies to your organizational structure (centralized vs. decentralized systems and/or management, etc.)

2. EQUIPMENT:

   Capabilities of different levels of systems, current state of the art and trends in technology provide a basis for the decision process. Data relating to what other companies in related fields are doing is always helpful.

3. APPLICATIONS

   There are obvious Word Processing applications in every organization. The existing applications should be identified and presented to management as reasons for considering conversion to a more sophisticated system. They are usually broken down and defined as:

   Generalized vs. Specialized
   Uncomplicated vs. Complicated

Usually, there are a number of applications which are not being processed because it would not be practical to process the applications on regular typewriters. These may be used to illustrate the need for automated equipment. Examples could be letters to new shareholders, more regular dunning letters, personalized advertising campaign, etc.

## 4. RELATED TECHNOLOGIES:

Word Processing systems have been cost justified on the basis of savings achieved through the capability of interfacing with related technologies alone. Primary areas for consideration are:

- Telecommunications
- Photocomposition
- OCR, etc.

## 5. COST JUSTIFICATION:

Senior management is usually not content with soft dollar savings; quantifiable information is required. It is difficult to assign a dollar value to the value of information, but this point should not be excluded. Things you may choose to outline could be:

- Reduced secretarial and/or managerial personnel requirements, if applicable.
- Ability to cope with increased workload without additional staff.

- Shortage of qualified secretaries.
- Profit - How many widgets must be sold to generate the potential savings of the proposed system?
- Improved quality
- Faster turnaround

## 6. PRODUCTIVITY

It is important that productivity gains not be oversold. Honesty is the best policy; expectation factors are fragile. Outline:

- Present System
- Proposed System, and why it will increase productivity.

## 7. IMPACT ON PERSONNEL:

All changes impact personnel. It is important that management not emit negative vibes to staff when discussing change and, quite often, management must be made aware of why the following elements must be given consideration.

- Job descriptions
- Pay scales
- Redundancy and Re-training

## 8. ADMINISTRATIVE SUPPORT

There is usually a need for administrative support; it is false economy for professional staff to be doing support work. Outline:

- Organization and management of proposed system.
- A list of duties proposed for administrative support personnel will clearly identify changes to the traditional secretarial role.

## 9. IMPROVED MANAGEMENT SUPPORT

Management staff is the most expensive in any organization. Look for real dollar savings in this area:

- Get $10,000 work off of $30,000 desks, through better use of support staff.
- Encourage the use of dictation as a management tool.
- Preparing for office of the future by introducing technology now. Statistics re industry growth rate, etc. may be used for impact.

## 10. BENEFITS:

Benefits to the organization and individuals within the orzanization should be presented: 123

- Tangible (hard dollars).
- Intangible (soft dollars).

## 11. FUTURE POTENTIAL

Outline:

- Related technologies
- Ability to cope with expansion (workload and capacity)
- Management workstations

## 12. SCHEDULE

Clearly outline details relating to implementation of proposed system, including finalization of equipment selection, organization/staffing, site preparation, forms/procedures, orientation/training, installation/phase-in, re-evaluation, etc.

## 13. MANAGEMENT COMMITMENT:

Commitment and support are essential if the project is to succeed:

- Request communications to staff.
- Request ongoing support.
- Commit to progress reporting to management.

Bearing the previous thirteen points in mind and with thorough investigation and analysis completed, Project Personnel should be equipped to prepare an effective presentation for management.

The following are some guidelines to help you present your ideas:

- The best way to secure management's support is to know what they believe is important; then, approach them from this vantage point.

- Before presenting your recommendations, give a history of the problem, and how you proceeded to solve it.

DYNAMICS OF PRESENTATIONS TO SENIOR MANAGEMENT --

- Identify the approaches taken when looking for problem solution and confirm the fact that you are positive that your recommendations are the most workable solution. Establish the credibility necessary to sell your idea.

- State your case in simple terms.

- Project confidence in your every action, don't anticipate rejection.

- Be concise, however, cover all pertinent facts.

- Be prepared to answer questions, objections or criticisms without putting either side on the offensive or defensive.

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- Be prepared to loose a couple of battles, just make sure you win the war.

- Only present change which will be accepted. Radical aspects could result in rejection of the many acceptable areas of change recommended.

- If practical, offer to implement recommendations in phases, with management approval obtained prior to commencement of each phase.

- Once the recommendations have been accepted, don't reopen the discussion. Further elaboration may raise doubts in the minds of management.

It is suggested that two forms of presentation be made i.e. a Written Report and a Verbal Presentation.

WRITTEN REPORT (3 levels)

- Executive summary (2-3 pages)
- Specific recommendations, including graphs, charts, diagrams, as required
- Results of data gathering, including a summary of interviews

Layout of the report is important. A professional report will signify a job well done and indicate professionalism. Provide a Covering Page, Table of Contents, double space for ease of reading and use Italics for emphasis.

Every report or presentation to management should include the following, if it is to be effective.

- Original management objectives
- What are we doing now
- How much does it cost
- What changes should be made
- How much will they cost
- What is the impact on personnel
- What are the projected savings
- How long will the process take
- What is the future potential

# DYNAMICS OF PRESENTATIONS TO SENIOR MANAGEMENT --

## VERBAL PRESENTATION

If the verbal presentation is not based on a full written report, an outline of the major points to be covered should be provided to each attendee. Buzzwords should be avoided and a pleasant congenial atmosphere should be created.

There are a number of critical components in the composition of a good verbal presentation i.e.

**P** repare an outline
**O** mit superfluous points
**S** peak in conversational tone
**I** nvolve the audience
**T** ransform negative attitudes into positive ones
**I** mpact with movement
**V** isual aids 127
**E** ye contact at all times

The goal of every presentation is to achieve **POSITIVE** results. The eight points listed above will help ensure that you reach your goal.

The employee who develops new ideas, whether they are accepted or not, is a more valuable employee. If all of your ideas are not accepted in the beginning, interest, persistence, flexibility and careful development will bring you success.

One important point to remember is the fact that "SUCCESS OFTEN COMES FROM NOT KNOWING YOUR LIMITATIONS".

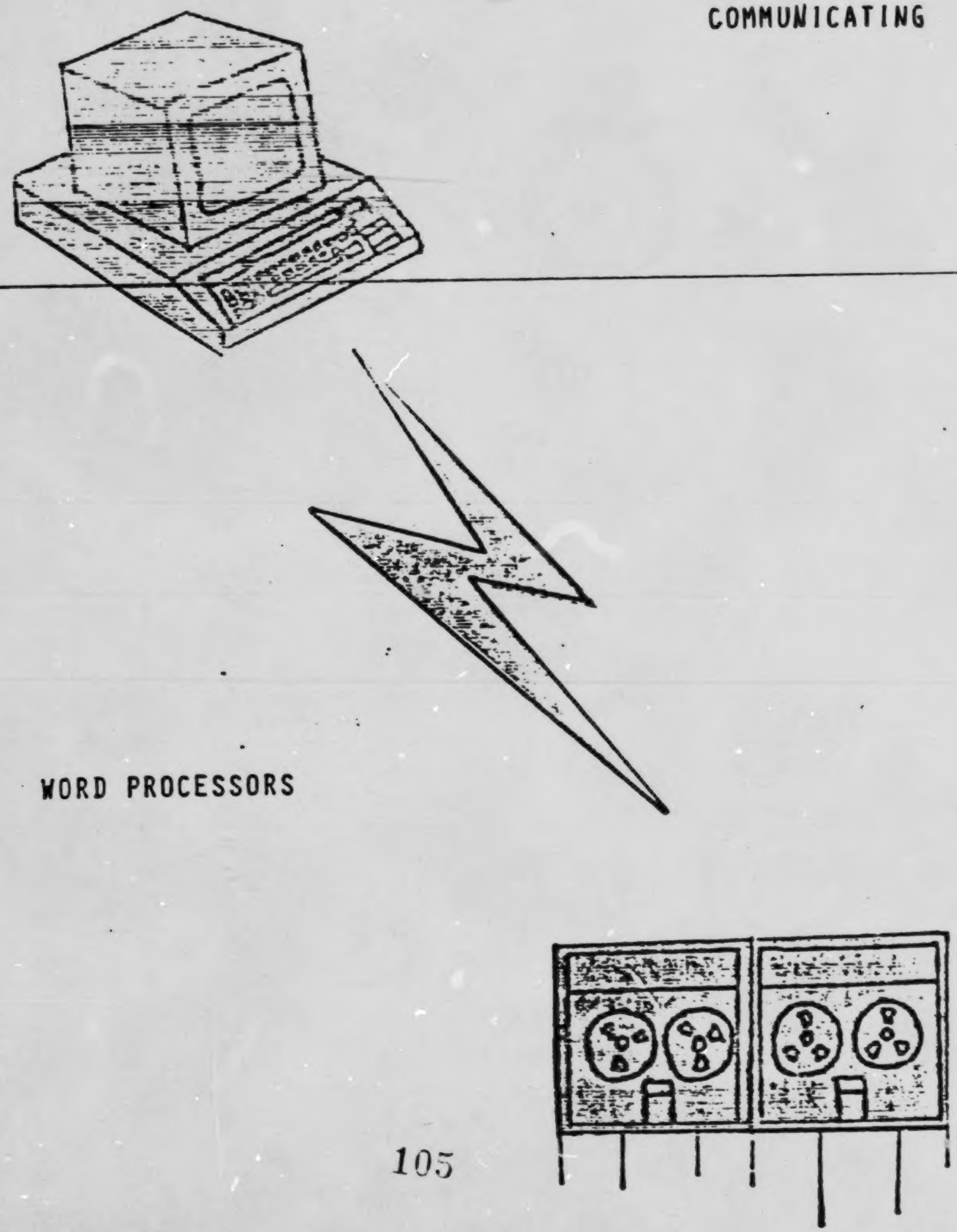
# COMMUNICATING WORD PROCESSORS

Robert I. Baxter
Manager, Administrative Services Division
Arthur Andersen & Company

*Level I*
*Wednesday Morning*
*June 25, 1980*

ARTHUR ANDERSEN & CO.

COMMUNICATING



WORD PROCESSORS

ARTHUR ANDERSEN & CO.

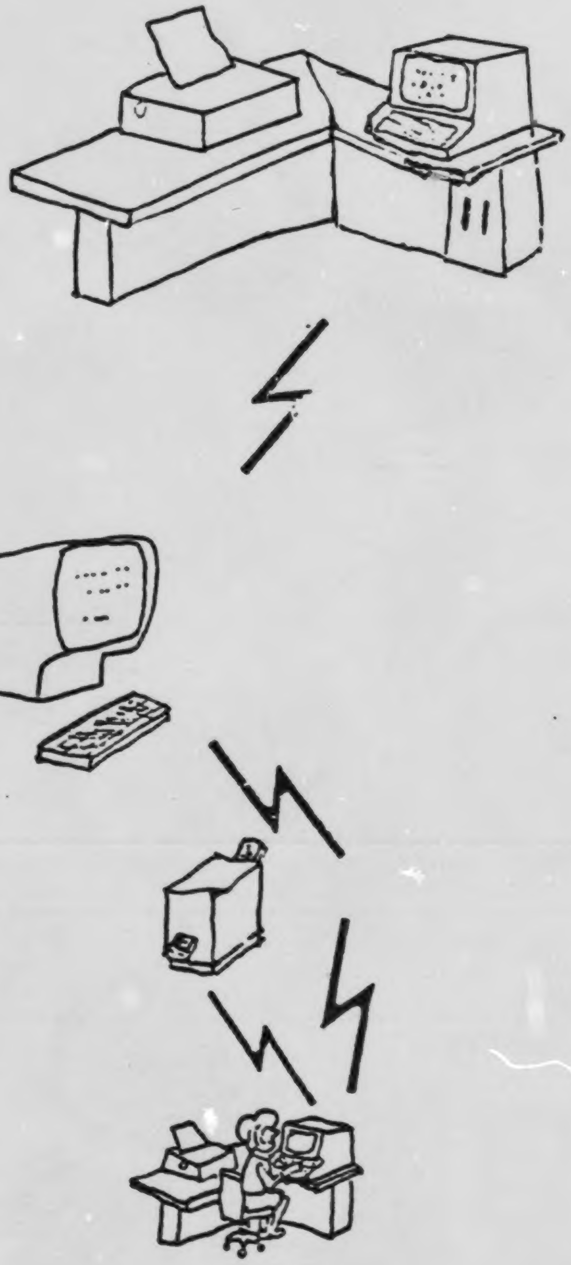
# COMMUNICATING WORD PROCESSORS

CWP'S

- HIGHLY ADVANCED
- FLEXIBLE

COMMUNICATE TO:

- MAINFRAME COMPUTERS
- TERMINALS
- TELEXES
- TWX'S
- PHOTOCOMPOSERS
- OCR
- INTELLIGENT COPIERS
- OTHER CWP'S



# PRESENTATION
# OUTLINE

## COMMUNICATING WORD PROCESSORS:

- DEFINITIONS
- TRENDS AND CAPABILITIES
- INSTALLED BASE
- VENDOR REVIEW
- POINT-TO-POINT APPLICATIONS
- CWP's AND THE COMPUTER
- CWP APPLICATIONS
- SELECTION GUIDELINES
- SIGNIFICANT VENDOR COMMENTS
- MAILWAY - REPRESENTATIVE ELECTRONIC MAIL SYSTEM
- CONCLUSION

## DEFINITIONS

COMMUNICATION TERMS REVIEW:

- TRANSMISSION MODE
- PROTOCOL
- EMULATION
- COMMUNICATION CODES
- WP CODING
- MODEM
- LEASED LINES
- DIAL-UP LINES
- TRANSMISSION SPEED

## DEFINITIONS

- PROTOCOL:
  - PROCEDURE OR PREDETERMINED SEQUENCE OF SIGNAL EXCHANGES THAT CONTROL THE TRANSMISSION BETWEEN DEVICES
  - NAMED AFTER THE DEVICES MOST COMMONLY ASSOCIATED WITH THEM
- EMULATION:
  - VENDOR WILL SAY WHAT THEIR MACHINE "EMULATES". HE IS TELLING YOU THAT THE COMPUTER "THINKS" THAT IT IS TALKING TO A DEVICE WITH WHICH IT IS FAMILIAR.
  - THE EMULATION TELLS THE TRANSMISSION MODE, BUT NOT SPEED.

## DEFINITIONS

- MODE OF TRANSMISSION:
  - EXPRESSION OF THE METHOD OF ASSEMBLING AND PROPAGATING DIGITAL PULSES ON A PHONE LINE
  - MODE INFLUENCES SPEED OF DATA TRANSFER
  - TWO MAJOR MODES:

    (1) ASYNCHRONOUS - EACH CHARACTER TRANSMITTED AS A SELF-CONTAINED UNIT, POSSIBLY AT IRREGULAR INTERVALS (EACH CHARACTER BRACKETED BY 135
    A START AND STOP BIT)

    (2) SYNCHRONOUS - STREAM OF MANY CHARACTERS IS SENT WITH START/STOP BRACKETS AT BEGINNING AND END OF INFORMATION

    - MORE EFFICIENT WHEN DATA IS SUPPLIED CONTINUOUSLY

EXAMPLES:

| ASYNCHRONOUS | SYNCHRONOUS |
|---|---|
| IBM CMC | 2770 - RJE STATION |
| 2741 TERMINAL | 2780 |
| TELETYPE TERMINAL - TTY | 3780 |

## DEFINITIONS

- COMMUNICATION CODES:
  - THE PATTERN AND NUMBER OF BITS THAT DIFFERENT DEVICES USE TO REPRESENT CHARACTERS.
  - THE LANGUAGE WHICH TRANSLATES BITS INTO IDENTIFIABLE CHARACTERS.

EXAMPLES:
- ASCII: AMERICAN STANDARD CODE FOR INFORMATION INTERCHANGE
  - THE INDUSTRY STANDARD FOR NON-IBM MACHINES
  - SEVEN-BIT CODE (ALLOWS FOR 128 COMBINATIONS; NOT ALL CAN BE PRINTED ON TEXT EDITOR)
- EBCDIC: EXTENDED BINARY CODED DECIMAL INTERNAL CODE
  - IBM ORIGINATED
  - EIGHT-BIT CODE - 256 COMBINATIONS
  - UPPER AND LOWER CASE ARE DIFFERENT CODES

## DEFINITIONS

- WP CODING:
  - PROBLEM: CODING IS PROPRIETARY TO VENDOR.
    - INCORPORATED IN ALL WP DEVICES.
    - ACCOMMODATES INFORMATION CONTENT AND SIGNALS TO CONTROL PRINTING, FORMATTING AND EDITING FUNCTIONS.
    - CODES ON ONE WP DEVICE MAY INVOKE COMPLETELY DIFFERENT FUNCTIONS ON ANOTHER VENDOR'S MACHINE.
  - INHIBITOR:

    CODING IS INHIBITOR TO COMPATIBILITY AND INFORMATION TRANSFER.

## DEFINITIONS
(CONTINUED)

- MODEM: MODULATOR-DEMODULATOR
  - CONVERTS DIGITAL SIGNALS GENERATED BY A WP DEVICE (OR TERMINAL OR COMPUTER) TO ANALOG FROM WHICH IS USED BY THE PHONE COMPANY FOR VOICE TRANSMISSION
  - RECEIVING END REQUIRES MODEM TO CONVERT ANALOG TRANSMISSION BACK TO DIGITAL FORM.
  - IF DIGITAL NETWORK, MODEMS NOT REQUIRED

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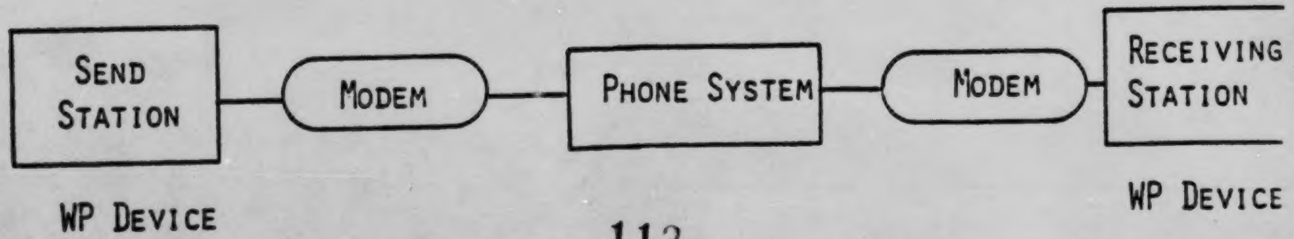
## CWP POINT-TO-POINT


SEND STATION
MODEM
PHONE SYSTEM
MODEM
RECEIVING STATION
WP DEVICE
WP DEVICE

## DEFINITIONS
## (CONTINUED)

- LEASED LINES:
  - USED WHEN FREQUENT COMMUNICATIONS ARE REQUIRED
  - FASTER TRANSMISSION THAN DIAL-UP LINES
  - REQUIRE NO ACOUSTIC COUPLER
  - ALSO KNOWN AS DEDICATED LINES
- DIAL-UP LINES:
  - USED WHEN THERE IS INFREQUENT COMMUNICATION
  - SLOWER TRANSMISSION SPEEDS
  - TIES UP TELEPHONE
  - WP DEVICE CONNECTED TO ACOUSTIC COUPLER
- TRANSMISSION SPEED:
  - EXPRESSED IN DIFFERENT WAYS
  - BITS PER SECOND OR BAUD

## DEFINITIONS
## (CONTINUED)

- EXAMPLE: ASCII CHARACTER TRANSMITTED ASYNCHRONOUSLY
  - ONE START BIT
    SEVEN DATA BITS
    ONE ERROR CHECKING BIT (PARITY)
    ONE STOP BIT

    ---

    TEN BITS PER SECOND = 1 CHARACTER 141
  - 1200 BAUD = 120 CHARACTERS PER SECOND
  - 50 PAGE DOCUMENT (1500 CHARACTERS PER PAGE)
  - TRANSMISSION TIME = 10 MINUTES (APPROX.)

# TELECOMMUNICATIONS

## TRENDS

POINT: TRENDS WILL MAKE INFORMATION PROCESSING VIABLE

- ANALOG (VOICE COMMUNICATIONS)
  DIGITAL (INFORMATION STORAGE FORMAT - WP AND DP)
  MODEMS (CONNECT DIGITAL TO ANALOG)
- AT&T
  PRESENT - ANALOG NETWORK
  FUTURE - ADVANCED COMMUNICATIONS SERVICE (ACS)
  - SOLVES PROBLEM: COMPATIBLE SPEEDS
    CODING STRUCTURES
    INTERNAL CHARACTERISTICS
  - FCC APPROVAL NOT GRANTED
- SATELLITE BUSINESS SYSTEMS
  FUTURE - DIGITAL DOMESTIC SERVICE
  - INDEPENDENT NETWORKS
  - JANUARY, 1981
- XEROX TELECOMMUNICATIONS NETWORK
  FUTURE - HIGH SPEED DIGITAL

## GROWTH

BY YEAR END 1978 IN USA

- 385,000 CWP's INSTALLED
- 17,300 IN USE

BY YEAR END 1979

- 490,000 INSTALLED
- 33,500 IN USE

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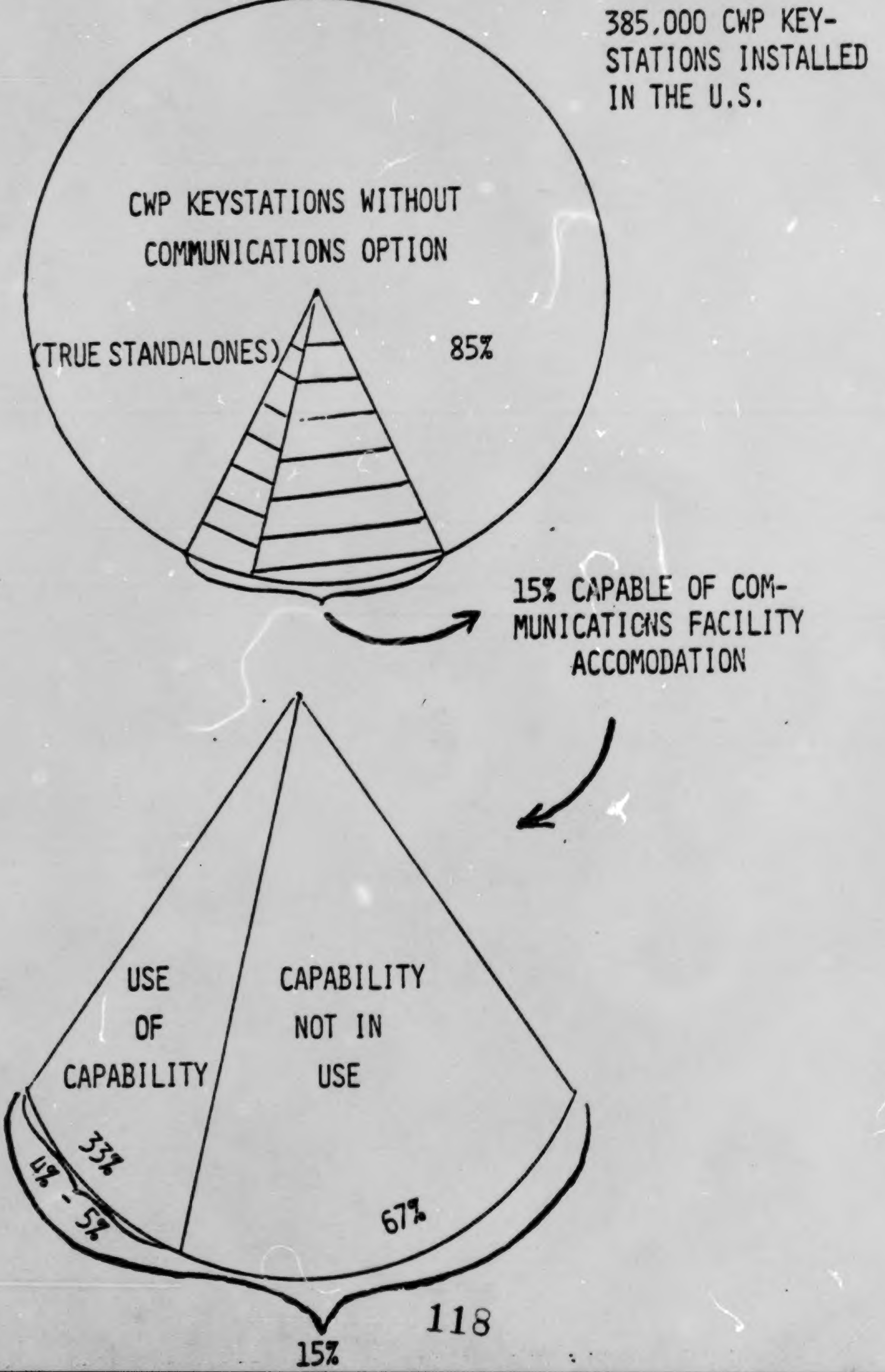
BY YEAR END 1982

- 263,000 CWP's IN USE*

* ACCORDING TO ARTICLE IN TELECOMMUNICATIONS

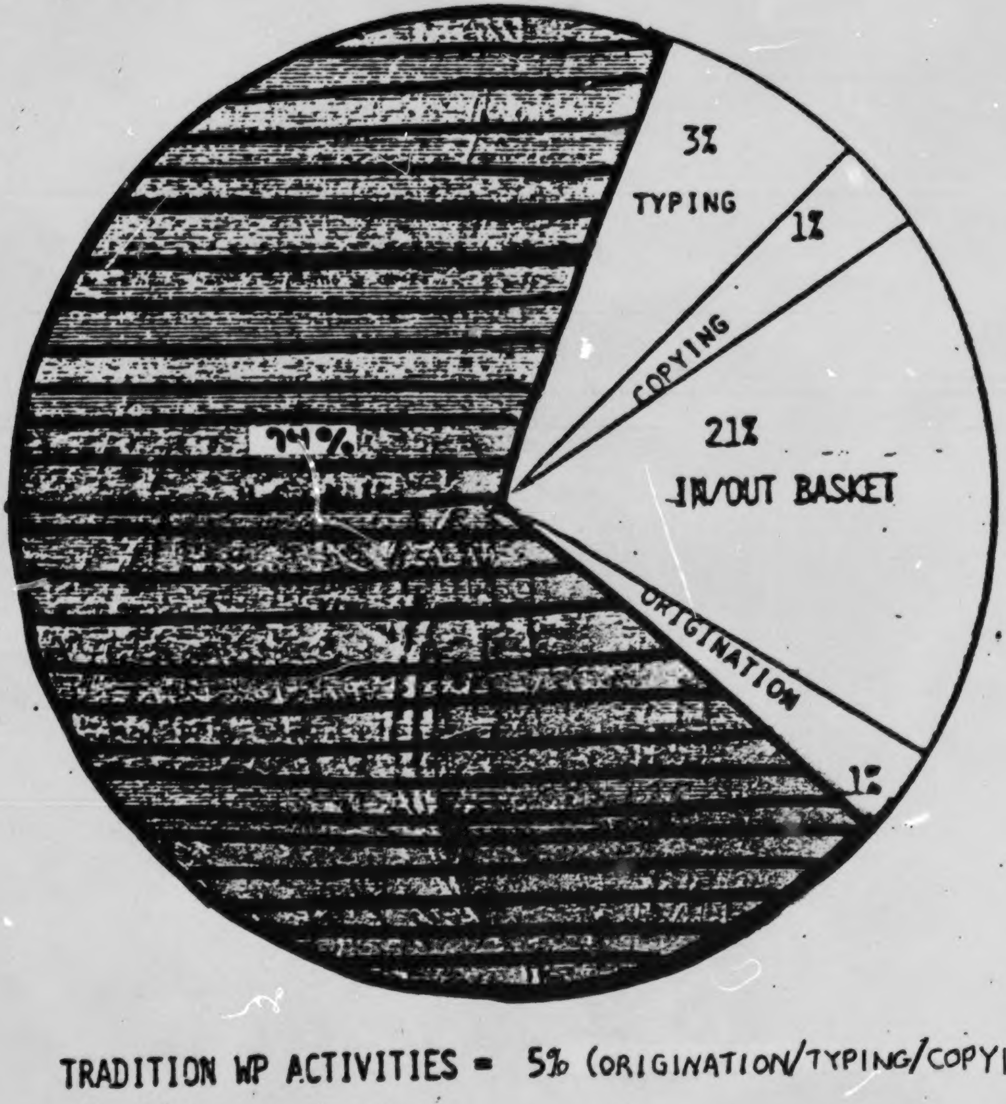
## CWP USERS



385,000 CWP KEY-STATIONS INSTALLED IN THE U.S.

15% CAPABLE OF COMMUNICATIONS FACILITY ACCOMODATION

## TIME CYCLE FOR DOCUMENT



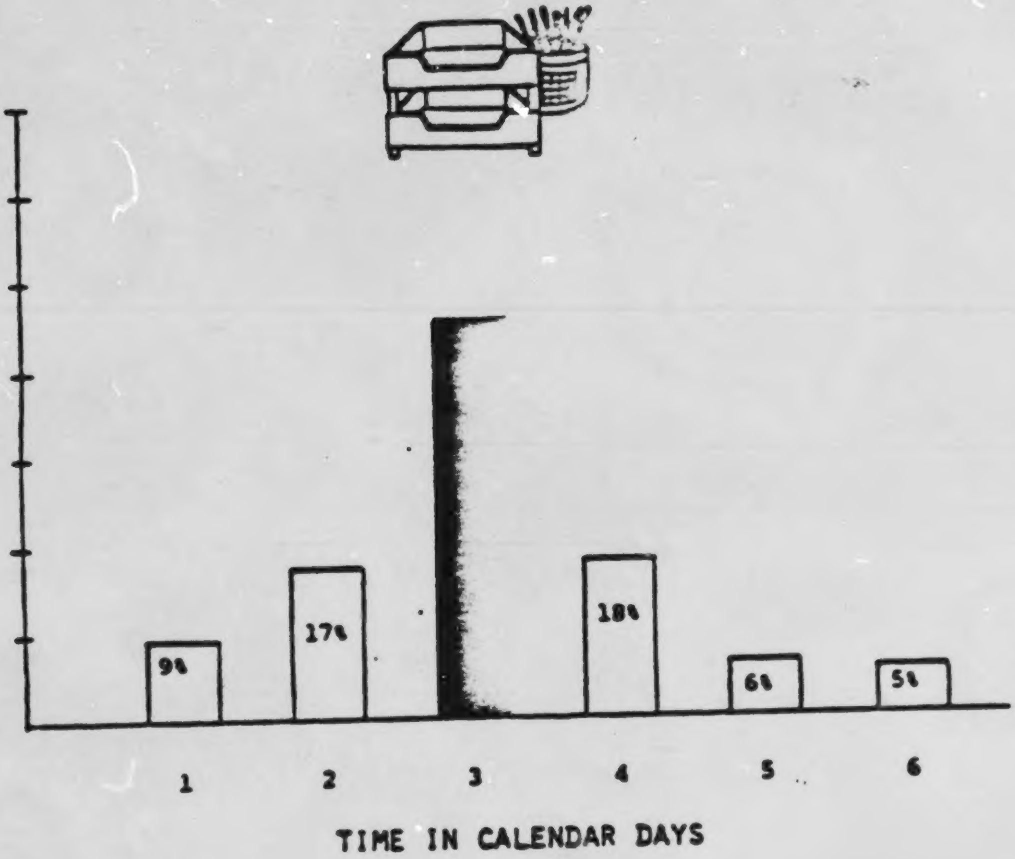
TRADITION WP ACTIVITIES = 5% (ORIGINATION/TYPING/COPYING)

DISTRIBUTION = 95%

## WHY COMMUNICATING WORD PROCESSORS?

- TIMELY COMMUNICATION OF INFORMATION
- RISING POSTAL COSTS
- DECLINING RELIABILITY OF POSTAL SERVICE
- COMPUTER REPORTS RETYPED FOR CLARITY (HIGH QUALITY OUTPUT)
- MERGE DATA WITH TEXT (LETTERS WITH COMPUTER GENERATED VARIABLES)
- TYPED DOCUMENTS REKEYED FOR COMPUTER INPUT

## INTERNAL MAIL DELIVERY TIME



**AND**

80 - 90% OF BUSINESS CORRESPONDENCE STAYS WITHIN ORGANIZATION

ARTHUR ANDERSEN & CO.

# COMMUNICATING WORD PROCESSORS ADVANTAGES

FAX TRANSMISSION REQUIRES MORE BITS TO SEND SAME AMOUNT OF INFORMATION AS C W P

C W Ps OFFER MORE RELIABLE AND COMPACT STORAGE MEDIA FOR TEXT THAN TWX/TELEX

C W Ps NOT ONLY COMMUNICATE/TRANSMIT BUT ALSO EDIT AND FORMAT

CWP ELIMINATES TIME AND EFFORT NEEDED TO RE-KEYBOARD MESSAGES THAT REQUIRE REVISION BEFORE TRANSMISSION

CWP CAN ACCESS OTHER SOPHISTICATED FUNCTIONS (SORT, MATH, FORMS)

USER HAS ADVANTAGE OF ALL OF C W Ps' PERIPHERALS

REVISABLE MEDIA/DOCUMENT

## C W P ADVANTAGES OVER FACSIMILE

- Speed/Lower Cost -- lower phone line charges
  C W Ps transmit whole characters 10-20 times
  faster than facsimile

- Superior Output Quality
  Facsimile creates images/letters by "dots"

- Double Handling of Generated Text unnecessary
  C W P is tube to tube
  Fax needs hardcopy at each end

- Communications Option alone on CWP relatively
  Low Cost ($500-3500)

- C W Ps can communicate with a number of Other Terminals

- Fax can only communicate with Fax
  (difficult to change fax "dots" to Terminal alphanumerics)

## POINT TO POINT CWP'S

- MAJOR APPLICATIONS (TO DATE)
  - LIMITED TO COMMUNICATIONS BETWEEN DEVICES OF THE SAME MANUFACTURER
- LIMITATIONS CAUSED BY:
  - INTERNAL CODING AND CONTROL SCHEMES DEFY TRANSLATION BETWEEN DIFFERENT UNITS (ARBITRARILY DESIGNATED BY VENDORS -- MAJOR INHIBITOR)
- POINT: TEXT TRANSFER POSSIBLE
  - CODING CAUSES OPERATOR INTERVENTION
  - EXAMPLE: WANG TO IBM (LISTS)
    - OPERATOR INSERTS END OF FIELD CODE AND RECORD CODES
- DILEMMA: WP EQUIPMENT TODAY -- TRADE OFFS
  - MUST CONSIDER LOCAL APPLICATIONS AND SERVICE

## POINT-TO-POINT

## CWP'S

- ALTERNATIVE: IN-HOUSE COMPUTER CAPABLE OF ACCEPTING VARYING PROTOCOLS AND CODE STRUCTURES THROUGHOUT THE ORGANIZATION 151

  OR

  EXTERNAL NETWORKS (TIME-SHARED) THAT OFFER ABOVE REQUIREMENTS

  (WORD WAREHOUSES)

# CWP's AND THE COMPUTER

REASONS FOR INTEGRATION VIA CWP'S:

- Combined Capabilities (DP/WP) Easily Justified Where Low Volume Activity
- WP Machines Used for Data Entry from Remote Sites (Low Volume and Time Critical)
- Communications Options Added to WP Devices (At Low Cost) Provide Basis for Electronic Mail Network
- Access to Common Data Bases Permitted
- Reporting Capability Enhanced
- Eliminates Need for Redundant Systems (in many cases)

## CWP APPLICATIONS

## COMPUTER INTERACTION

**CHARACTERISTICS:**

- HIGH PRINT QUALITY WITH LOW VOLUMES
- COMMUNICATION VOLUME SIGNIFICANT FROM REMOTE LOCATIONS TO HEADQUARTERS
- REKEYBOARDING OF DATA FROM EXISTING SYSTEMS (EQUIPMENT UTILIZED FOR DIFFERENT PURPOSES FROM SAME INFORMATION)

# CWP'S
# AND THE
# COMPUTER

- PROBLEMS EXIST:
  - DP FACED WITH WP VARIABLE LENGTH RECORDS AND FORMAT CODES (IMBEDDED) - REQUIRES CONVERSION OR REFORMATTING
  - WP QUALITY REQUIREMENTS SLOW DOWN COMPUTER PRINTING
  - WP FUNCTIONS ARE INTERACTIVE AND COMMUNICATIONS COSTS CAN BE HIGH (DIAL-UP SYSTEMS PRIMARILY)
  - COMMUNICATIONS (TRANSMISSION)
    BI-SYNCHRONOUS NOT COMMON ON WP DEVICES - VERY COMMON ON TERMINALS
  - SECURITY SYSTEMS ARE CONCERN TO DP FOR WP DEVICES
  - WP SECRETARIES USED TO EASY OPERATION
    (PROMPTS, MENU'S, FUNCTIONAL KEYS)
  - DATA ENTRY DEVICES MORE DIFFICULT BASED ON APPLICATIONS

# CWP
## APPLICATIONS AND THE COMPUTER

- LARGE MANUFACTURER UTILIZES CWP'S TO ACCESS MANPOWER REPORTS, QUOTA, TERRITORY PLANNING SYSTEMS. CWP'S UPDATE DATA BASES WITH NEW INFORMATION AND REVISED PLANS. NETWORK ALSO USED FOR ELECTRONIC MAIL TO VARIOUS LOCATIONS.

- OIL COMPANY UTILIZES CWP'S TO CREATE PURCHASE ORDERS. STATISTICAL INFORMATION CAPTURED AND SUMMARIZED AND SENT VIA CWP TO COMPUTER FOR WEEKLY AND MONTHLY SUMMARIES.

- INSURANCE POLICY DOCUMENT GENERATION AND INFORMATION ENTERED VIA CWP TO MAINFRAME.

- LOAN DEPARTMENT OF MAJOR BANK UTILIZES CWP TO ACCESS DELINQUENT LISTING AND PRINTS LIST AND LETTERS ON CWP FOR HIGH QUALITY.

- DP DEPARTMENT OF MAJOR DRUG FIRM UTILIZES CWP FOR PROGRAM SOURCE CODE GENERATION AND HARD COPY OUTPUT.

## CWP

## SELECTION CRITERIA

- AUTOMATIC FEATURES: REDUCE OPERATOR INTERVENTION
  - AUTO DIAL
  - AUTO ANSWER
  - STORE LIST AND SEND SELECTIVELY
  - POLL WORK STATIONS FOR MESSAGES (SHARED SYSTEMS)
  - UNATTENDED OPERATION (ASR)
  - BACKGROUND COMMUNICATIONS
- MULTIPLE PROTOCOLS: FLEXIBILITY
  - SCREEN DISPLAY
  - CURSOR SELECT
  - WIDE RANGE OF PROTOCOLS
  - COMMUNICATIONS CONTROL PROGRAMS (ON DISKETTE)
- TRANSMISSION SPEEDS: COST CONTROL
  - RANGE OF SPEEDS
  - 300 TO 9600
- COMPATIBLE WITH EXTERNAL SERVICES: CODE CONVERSION (SHORT TERM)
  - "BOWNE CONNECTION"
  - TELESYSTEMS NETWORK - PROTOCOL BOX

# C W P

## VENDOR COMMENTS

- "WE ARE CURRENTLY SHIPPING ABOUT 50-60% OF OUR OFFICE SYSTEMS (WPS) WITH TELECOMMUNICATIONS. THE MOST SIGNIFICANT PROTOCOLS ARE 2780/3780 BISYNCH." (WANG)

- "OUR COMMUNICATIONS "TAILORING" MAY BE OF INTEREST. IT ALLOWS THE SYSTEM 3000 TO ACCESS A VARIETY OF . COMPUTER DATA BASES AND OFFERS FLEXIBILITY WHEN COMMUNICATING TO OTHER WORD PROCESSORS." (NBI)

- "WE ARE PLANNING FOR AN ANTICIPATED DEMAND OF 25% OF ALL MAGNA SL WITH COMMUNICATIONS."
  "THE LAST FEW MONTHS REQUESTS HAVE INCREASED FOR MORE ADVANCED COMMO FEATURES (PRIMARILY INCREASED BAUD RATES). THERE IS A GREAT DESIRE TO 'TALK TO COMPUTERS'." (A. B. DICK)

- "I THINK MOST OF THE WP VENDORS WOULD LIKE A CLEAR DEFINITION OF THE PROTOCOLS THAT USERS DESIRE. AT THE PRESENT TIME, THERE ARE NO CLEAR-CUT STANDARDS." (VENDOR)

## CWP
## VENDOR COMMENTS

- "THE SURFACE HAS JUST BEEN SCRATCHED (POTENTIAL).

  AS LONG AS COMMUNICATIONS IS DONE STRICTLY IN THE TERMINAL EMULATION MODE, LIMITATIONS WILL EXIST. THE FUTURE OF ELECTRONIC MAIL IS BOUNDLESS.

  IMPLEMENTATION WILL BE DIFFICULT AS IT WILL REQUIRE CHANGING THE HABITS OF PEOPLE. WORD PROCESSORS MAKE EXPENSIVE TERMINALS.

  THE SAVING OF KEYSTROKES IS THE REAL BENEFIT.

  WP COMMUNICATIONS IS IN A STATE OF INFANCY, AND GREATER AWARENESS WILL CAUSE IT TO REACH ITS FULL POTENTIAL."

(LANIER)

# IBM VIEWPOINT

FIVE BASIC APPLICATIONS OF COMMUNICATING PRODUCTS TO A COMPUTER:

- QUALITY PRINTING ON A TEXT PROCESSING SYSTEM SUCH AS ATMS
- USE OF A COMPUTER FOR STORE AND FORWARD FOR ELECTRONIC DOCUMENT DISTRIBUTION.
- USE OF A WP DEVICE TO A COMPUTER FOR DISTRIBUTED PRINTING AND/OR DATA ENTRY
- APPLICATIONS THAT INVOLVE RECORDS PROCESSING OR A SUBSET OF A COMPUTER FILE WHICH ARE TRANSMITTED TO AN OS/6 FOR SUBSEQUENT SELECT AND SEQUENCE.
- COMMUNICATIONS FROM A WP MACHINE TO A COMPUTER WITH SUBSEQUENT PROCESSING THROUGH COMPUTER OUTPUT MICROFILM.

# COMMUNICATING WORD PROCESSORS
# AND
# YOUR ORGANIZATION

- CONSIDER CWP'S NOW IF INTERCONNECTION IS A PRESENT OR FUTURE CONSIDERATION.
- EXAMINE VENDOR'S CAPABILITIES IN TERMS OF:
    - TRANSMISSION SPEEDS - BITS PER SECOND
    - PROTOCOL RANGE - CONTROL TRANSMISSION
    - CODING STRUCTURES - BITS TRANSLATE INTO CHARACTERS
    - TRANSMISSION MODE - ASYNCHRONOUS OR SYNCHRONOUS
- DATA PROCESSING FUTURE PLANS: DEVICES THEY PLAN TO LINK TO MAINFRAME
- IBM PROTOCOL: MOST VENDORS WILL BE COMPATIBLE
  EBCDIC 2780/3780
  (ASCII IS ANOTHER POPULAR PROTOCOL)
- REMEMBER: INDUSTRY STANDARDS DO NOT EXIST
  CODE STRUCTURES VARY ALSO
  (CENTER CODE INVOKES TRANSMISSION END)
  CONVERSION "BOXES" - LIMITED AVAILABILITY
- SOLUTION: INSURE THAT VENDOR UNDER CONSIDERATION
  DEMONSTRATES COMPATIBLE COMMUNICATIONS

## ELECTRONIC MAIL SYSTEM

- WANG "MAILWAY"
  - ANNOUNCED JUNE 4, 1979
  - ELECTRONIC MAIL AND MESSAGE SYSTEM
  - AUTOMATES THE DISTRIBUTION OF DOCUMENTS AND COMPUTER FILES
- INTERCONNECTS
  - WANG VS COMPUTERS
  - WANG VS/WP COMPUTERS
  - WANG OIS SYSTEMS
  - WANG WORD PROCESSORS (EXCEPT SYSTEM 5)
- REQUIREMENTS
  - NETWORK MUST INCLUDE ONE VS OR VS/WP SYSTEM WITH MAILWAY SOFTWARE
  - ALL SYSTEMS MUST HAVE COMMUNICATIONS CAPABILITIES

# MAILWAY
(CONTINUED)

- ADVANTAGES
  - EXPANDED UTILIZATION OF WP DEVICES
  - ELIMINATES NEED TO:
    - MULTI-COPY DOCUMENTS
    - INSERT, DELIVER, MAIL ROOM SORT, DELIVER
    - ADDRESS ENVELOPES
  - SAVES DELIVERY TIME AND LABOR
  - EXTERNAL ELECTRONIC (WITHIN NETWORK) DELIVERY
  - MAIL LOG CREATED USED TO CONTROL FLOW OF INFORMATION, BUDGETS AND CHARGEBACKS

# MAILWAY

- FUNCTIONS:
  - DISTRIBUTION CENTERS ⟶ VS OR VS/WP COMPUTER

    MAIL/MESSAGE PREPARATION
    FORMATTING
    ADDRESSING
    TRANSMISSION
    AUTHORIZATION
    RECEPTION
    FORWARDING
    DISSEMINATION
    DISPATCHING
    TRACING

    MANAGE DIRECTORIES

    MANAGE PASSWORDS

    MAINTAIN USER LISTS

    ROUTE TABLES

    SUPPORT DISTRIBUTION "LISTS" 163

    SUPPORT "MAILBOX" FUNCTIONS

  - DISTRIBUTION POINTS ⟶ PRINTERS OR "MAILBOXES"

    POINT WHERE ADDRESSEE RECEIVES MAIL ITEMS

    UNIQUE IDENTIFICATION OR SHARED BY OTHERS

    OIS SYSTEMS OR WORD PROCESSORS

- OTHER FEATURES:
  - MENU AND MAILING DIRECTORY (ELECTRONIC ADDRESS BOOK)
  - AUTHORIZED OPERATORS CAN INITIATE DISTRIBUTION TO A NUMBER OF RECIPIENTS
  - TRANSMITS IN BACKGROUND MODE
  - EACH DOCUMENT RECEIVES UNIQUE IDENTITY
  - ELECTRONIC COPIES MADE FOR DISTRIBUTION CENTERS

## COMPATIBILITY SOLUTIONS

- IN-HOUSE PROGRAMMING -- CODE CONVERSION
- "BOWNE CONNECTION" -- EXTERNAL SERVICE BUREAU
- PROTOCOL TRANSLATOR -- BLACK BOX
- "COSMOS" -- SOFTWARE ON SERIES/1

INSURE:

ALL OPERATORS MUST UTILIZE STANDARD RECORDING PROCEDURES

ARTHUR ANDERSEN & CO.

# "COSMOS"

## COMPUTER SYSTEM FOR THE MANAGEMENT OF OFFICE SERVICES

VENDOR:

DDP SYSTEMS, INC.
NEW YORK, NEW YORK

FEATURES:

- OFFICE MANAGEMENT AND CONTROL SYSTEM
- INTEGRATES WP AND DOCUMENT FILE MANAGEMENT
- PROVIDES RECORDS MANAGEMENT
- SUPPORTS EXISTING WP STATIONS
- OPTIMIZES PREVIOUS AND PLANNED WP INVESTMENT
- CONNECTS GEOGRAPHICALLY DISTRIBUTED WP DEVICES INTO AN OFFICE COMMUNICATIONS SYSTEMS
- MULTIPLE WP VENDORS CAN COMMUNICATE
- OUTPUT OPTIONS AVAILABLE

## AVAILABLE OPTIONS

- MULTI-VENDOR WP INTERFACES
- MULTI-SITE COMMUNICATIONS
- MASS STORAGE -- ON LINE
  -- ARCHIVAL
- HIGH SPEED PRINTING
- ELECTRONIC MAIL
- DOCUMENT CONTROL
- DOCUMENT SECURITY
- ASYNC AND SYNC
- VENDORS -- WANG DEC CPT
  OS/6 LANIER FOUR PHASE
  VYDEC XEROX LEXITRON

## ALTERNATIVE TO CWP'S

VOICE MAIL (VMS)

- EFFICIENT AND MOST NATURAL FORM OF COMMUNICATIONS
- ELIMINATES "TELEPHONE TAG"
- SPOKEN WORDS BECOME DIGITIZED "MAIL"
- SPECIAL NUMBER ACCESSES "VOICE" MAIL
- MESSAGE STORED IN MEMORY (DIGITAL)
- UPON ACCESS, MESSAGE RECONSTITUTES DIGITAL BACK TO VOICE
- ECS, INC. -- DALLAS
- INSTALLED AT 3M CO. HEADQUARTERS
- $10.00 PER MONTH OR 10¢ PER MESSAGE

# A GUIDE FOR TRAINING DICTATION USERS

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*Level I*
*Wednesday Morning*
*June 25, 1980*

# A GUIDE FOR TRAINING DICTATION USERS

Success in implementing today's advanced office systems relies partially on our ability to use machine dictation effectively.

Dictating by machine has, time after time, proven to be the most efficient method of input to advanced office systems. However, for many, the step up to machine dictation has been disastrous.

The problems with implementing machine dictation are often the result of ineffective training programs. This paper, "A Guide for Training Dictation Users," will focus on the following:

- The use of an Advanced Preparation Checklist that will help make your training sessions run smoother
- Course administration pointers that will assure the success of your training sessions
- Ice-breaking techniques that should be used once the participants have arrived
- Proper ways to begin your training sessions
- Correct dictation techniques that should be stressed during training
- Some additional pointers that will assure the accuracy of the dictation
- The use of dictation equipment during your training sessions to provide the participants with hands-on experience
- The handouts required for backup information, and
- Techniques used when ending your training sessions.

# A GUIDE FOR TRAINING DICTATION USERS

## Advanced Preparation Checklist

The purpose of this checklist is to make sure that you have completed each stage of the preparation process. It is usually divided into four parts and should include a column for remarks.

The first part refers to those items that must be prepared at least one month in advance. These should include:

- Gathering and reviewing all course material that will be used
- Preparing handouts and flip charts
- Issuing a memorandum to management announcing the course
- Beginning the process of selecting participants, and
- Ordering any materials that will be used during the session, such as pencils, pads, and ashtrays.

The second part refers to those items that must be prepared at least two weeks in advance. These should include:

- Scheduling the training room
- Scheduling any audio visual equipment that will be used
- Scheduling your vendor's representative and/or equipment
- Notifying all participants of the time and place of the training session, and
- Ordering any refreshments.

## Advanced Preparation Checklist (Continued)

The third part refers to those items that must be prepared at least one week in advance. These should include:

- Confirming attendance, and
- Confirming vendor arrangements.

The last part covers those items that must be prepared at least one day in advance. These should include:

- Setting up the training room
- Setting up the audio visual equipment, and
- Setting up your vendor's equipment.

## Course Administration Pointers

An important element in the success of any training program is how the course is administered. This should not be taken lightly with regard to dictation training. Course administration pointers include: 173

- Keep your sessions informal.
- Avoid the typical classroom setting.
- Be an administrator, not a teacher.
- Do not sit at the head of the table.
- Make the participants feel at ease.
- Show enthusiasm, but don't over do it.
- Have a neat appearance.
- Be on time.

## Course Administration Pointers (Continued)

- Know the equipment, and
- Have a positive mental attitude.

## After the Participants Have Arrived

- Welcome each participant.
- Establish informal rapport with the participants, and
- Offer the participants some refreshments.

## Beginning Your Training Session

- Welcome the group and introduce yourself.
- Go around the room and have the participants introduce themselves.
- State why the course is being conducted.
- Provide the participants with a course outline and stress what is to be accomplished, and
- Tell the participants why they have been selected to take this course.

## Correct Dictation Techniques

This is the most important part of your training and should include:

- Preparation
  1. Set the environment for uninterrupted dictation.
  2. Organize all material, and
  3. Gather all the information you need to dictate.

Correct Dictation Techniques (Continued)

- Beginning Dictation
  1. Identify yourself.
  2. Identify the type of document you are dictating, and
  3. Identify output requirements.
- During Dictation
  1. Spell out unusual names, addresses, and technical terminology.
  2. Dictate distinctly and at your normal speaking rate and tone.
  3. Picture the reader in your mind as you dictate.
  4. Include all punctuation marks.
  5. Begin each paragraph with a number, and
  6. Observe good dictation etiquette. 175
- Before Ending Dictation

  Play back your dictation and make sure you have:
  1. Dictated clearly and distinctly
  2. Made your purpose clear
  3. Included all main ideas
  4. Arranged your thoughts in the best possible sequence
  5. Included all supporting data
  6. Used correct data
  7. Used proper grammar and the correct choice of words

## Correct Dictation Techniques (Continued)

o Before Ending Dictation (Continued)

8. Spelled out unfamiliar names, addresses, and terminology, and
9. Identified your output requirements.

o Ending Dictation

1. Indicate whether or not enclosures or attachments are to be included.
2. Include your title, and
3. Be polite and say thank you.

## Additional Pointers

o Be sure to include the titles of the individuals you are writing to or are discussing.

o Be sure to include all capitalization, and

o Be sure to pronounce unusual or difficult words before spelling them.

## Using Dictation Equipment During Training Session

Using dictation equipment during your training sessions provides the participants with hands-on experience. (During this part of your training session you may want the assistance of your vendor.) Points to be stressed include:

o Explain the use of the equipment.

o Allow for questions throughout.

o Provide an amplifier so that the participants can hear what they have dictated.

Using Dictation Equipment During Training Session (Continued)

- Stress the good points of their dictation.
- Help the participants with their dictation problems.
- Review the basic document cycle, and
- Emphasize system supervision.

## Participant Handouts

- The Dictation Users' Guide

  The Dictation Users' Guide should contain information such as system operation and correct dictation techniques.

- Originator's Profile Sheet

  The Originator's Profile Sheet should contain such information as name, title, location, extension number, and employee number. Additionally, it should contain any special requirements, such as stationery, and an indication as to the extent of editing authority.

- Organization Sheet

  This form helps the word originators put their thoughts on paper in the most logical sequence before they are dictated.

- Instruction Card

  This is a handy reference card which the word originators can keep with them wherever they go. It should explain the basics of equipment use and correct dictation techniques.

# A GUIDE FOR TRAINING DICTATION USERS

## Ending Your Training Session

- Enforce your commitment to helping the participants become more efficient through the use of this new way of communicating.
- Make yourself available for additional questions or discussion, and
- Thank the participants for attending.

If management is to implement today's advanced office systems successfully, it must recognize that mastering machine dictation requires training, practice, and patience.

# WP TO COMPUTER OUTPUT MICROFILM:
# THE CASE FOR MICROGRAPHICS

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*June 25, 1980*

# WP TO COMPUTER OUTPUT MICROFILM: THE CASE FOR MICROGRAPHICS

## ABSTRACT

3M sells a wide range of office products. Various divisions manufacture and market everything from copiers to overhead projectors, from facsimile devices to transparent tape. One division of the Business Products Group within 3M has sold microfilm equipment for many years. Another department has marketed a line of word processors since the acquisition of Linolex Systems in 1975. Yet it took some time before the Computer Output Microfilm (COM) people convinced the word processing people to interface the two types of equipment.

There was ample justification for thinking this type of interface was possible. The word processing group offered a magnetic tape drive as a peripheral on their programmable system, and the COM group only needed a standard print-image tape to load into their system in order to produce 181 film or fiche. Plus the WP group had previously interfaced to phototypesetters through magnetic tape and communications. All that was required was the software on the word processor to transfer documents to tape in print image format.

Was it all so simple? And what did the users actually want? In what follows, a vendor relates an experience with half-inch tape and other forms of interfacing.

# WP TO COMPUTER OUTPUT MICROFILM: THE CASE FOR MICROGRAPHICS

## INTRODUCTION

The idea sounds great: produce microfiche from the storage media of a word processor. Instead of photographing each piece of paper, the original keystrokes are captured on the W/P media and somehow transferred to a Computer Output Microfilm device in machine-readable format. Now just find a COM unit that accepts magnetic cards, tape cassettes or flexible diskettes. Well, how about a word processor that generates a half-inch magnetic tape in print-image format? Could we just wire the two beasts together, then? Where are all the yes-men when I need them?

* * *

The frustration isn't so complete these days, but the obstacles certainly aren't minor. What you have is an example of the Interface Problem, a phenomenon whose nuisance value will steadily increase along the trail to the automated office.

This particular example is very specific, though. Can a word processor output directly, or indirectly, to a COM unit? Has it already been done, and how? Should it be done, and why?

## THE COMPANY

3M manufactures and markets both word processing and COM equipment. The two product lines were added to the Business Products Group through separate acquisitions (Linolex Systems and the BETA Division of Gould) in Massachusetts five years ago. Linolex became a subsidiary under the aegis of the Information Management Department, later renamed the Business Communication Products Department, which also sold a line of facsimile devices. BETA was absorbed into the Micrographic Products Division as the COM Project. It was not until several years later that the two groups finally came together to discuss the possibility of interfacing their equipment.

## EVOLUTION

Linolex Systems was in the business of selling a programmable terminal, not only for word processing applications, but for data processing as well. This being the case, it was necessary for the company to offer a range of standard, half-inch magnetic tape drives as peripheral devices, since the common medium of exchange in the D/P industry is a reel of tape. It was inevitable that a word processing customer in the government would discover that the Government Printing Office accepted magnetic tape as input to its giant phototypesetting system and request that Linolex write a program to transfer documents from word processing cassettes to nine-track tape. The software was written, the customer used it and it worked. Documents could now be drafted on the word processor and transformed into typeset pages without having to re-key any text. Truly a stirring success story.

This all took place well before the 3M acquisition; long afterwards, another customer turned up for the software. None of our users seemed to be in a big hurry to interface their word processor to their company's phototypesetter, and for good reason. Tape drives were very expensive, and none of the smaller, in-house phototypesetters accepted magnetic tape as input. The prospective user was faced with buying two tape drives: one connected to the word processor, and another connected to the phototypesetter. By the time the total bill was computed, few people could justify the expense of such an elaborate set-up just to capture keystrokes at the word processor.

To make a long story short, times changed. Diskettes became the standard media on the word processor, the interface software was rewritten and improved, and devices became available that allowed the word processor to transmit text to the phototypesetter via communications. Since the cost of a communications option on the word processor and a receiving device connected to the phototypesetter was far less than the cost of two tape drives, the number of installations increased dramatically. Interfacing W/P equipment to a phototypesetter had come within reach of many more users with the reduction of interface costs.

It was based on the experience we had with phototypesetters that the COM group decided we could whip together an interface program to their COM device. We did, and as of the first of this year it is available to all of our users.

From the user standpoint, the program is exceedingly simple. A tape drive is connected to our word processor, still a fairly expensive proposition. Then, a diskette is loaded into the machine, a group of documents is selected from the index (directory) and a tape is written in print image format. For those of you interested in the exact tape format, look in the appendix. For those of you interested in what we had to do to our word processor documents to convert them to print image format, here it is:

1. Translate from ASCII, our native character set, to EBCDIC.

2. Translate or strip out all special word processor codes. For example, subscripts and superscripts had to be removed from the text. A center code was removed also, but the line following it was centered with spaces before being written to the tape.

3. Format each text line as 132 printable characters, preceded by a single carriage control character. If a word processor line was shorter, it was padded with spaces. If it was longer than 132 characters --and it could be, since we allow up to 158-- it was split into two separate lines, the second one containing the excess over 132.

4. Combine ten lines of 133 characters each into one physical block on the magnetic tape: 1330 bytes.

5. Replace tabs with spaces in the text.

6. Replace carriage returns and other end-of-line codes with a carriage control character at the beginning of the next line on the tape.

7. Ignore underlining. Since underlining on the COM unit required the creation of two lines, one with the text and the second with spaces and underscore characters, it was decided not to support this feature in the first release of software.

8. Write tapemarks on the tape in appropriate places. These marked the beginning and end of data, generally.

Numerous word processing features were sacrificed (some of which have already been mentioned):

1. The ability to insert graphic material into the text, such as diagrams or pictures.
2. Underlining.
3. Subscripts and superscripts.
4. Double and triple line spacing.

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5. Lines longer than 132 characters.
6. Different pitches (characters/inch). The COM unit outputs only single-density monospace text.
7. Flush right margins, also known as right justification.
8. Highlighting, or bold print.

Many of these lost goodies may never be possible on COM equipment, being more appropriate to phototypesetters. Others are just a function of software and may appear in a later version. For now, though, no one is complaining. Maybe because very few people are using the software.

## ACCEPTANCE

It is awfully difficult to find a word processing person who knows what Computer Output Microfilm is. And it's equally difficult to find a COM person who has talked to a member of the W/P staff. And in those large companies where the two groups have held discussions regarding a potential interface, it is almost impossible to justify the high cost of a tape drive for the application. It seems like an expensive way to put documents on film.

There seem to be just two major applications for the WP-to-COM connection:

1. FILING -- archival storage of documents which may be referenced at some later date.
2. DISTRIBUTION -- publishing documents on fiche for low-cost, mass distribution.

In both instances you are replacing the more expensive, bulkier medium called PAPER with the cheap, compact alternative called FILM. And you are assuming that the target individual has a fiche reader handy: either the person using the files or the person on the distribution list. Although this may be increasingly common for personnel dealing with computer output on fiche, it is not particularly true of the people to whom word processing documents are directed. To them, security is having the hardcopy in their hands.

So we are left with trying to justify an expensive tape drive for some limited applications. Is this the end? Well, if the real obstacle is the cost of the interface hardware, let's look at some alternatives. What has helped in other, similar situations?

Going back to the evolution of the phototypesetter interface, one development was crucial to more widespread acceptance: the use of communications hardware in place of a tape drive. Not only was the communications option an order of magnitude cheaper than the tape drive, but it was also more familiar to the word processing user, and therefore more acceptable. This, and the expanding use of flexible diskettes on both word processors and phototypesetters, has brought the two types of equipment much closer together in recent years.

The burden, then, is on the COM manufacturers to incorporate communication ports into their devices, to allow a broader range of inputs -- not just from word processors, but even from minicomputers without a tape drive. Because of the slower speed of communications compared to a tape drive, it may well be necessary for the COM unit to buffer the input before creating the fiche. The flexible diskette provides a perfect method of recording the received data until it can be used by the COM device to expose the film.

We are getting off on a tangent, however. The real point here is that the software interface is an extremely minor problem compared to the hardware interface between W/P and COM. The software to convert word processor documents to print image format is a relatively easy task on any programmable system. The hardware required --a magnetic tape drive-- is a rare sight indeed among word processing users, and an expensive item when available. Other forms of interfacing can only further the relationship between W/P and COM.

## APPENDIX

The COM Output software available from 3M (Business Products Sales Division) operates on the following minimum hardware configuration:

- System 84/20
  - Dual diskette drives
  - Video screen and keyboard
  - 32K main memory

- Tape Transport
  - 9-track
  - 800 BPI
  - Attaches to System 84

The software produces an IBM-compatible print image tape with the following characteristics:

1. Unlabeled.
2. Each group of documents is preceded by a tapemark. A group of documents may be as many as 30 documents or up to a total of approximately 100 full pages (250,000 characters).
3. Last document on the tape is followed by two tapemarks.

4. Block size is 1330 characters.

5. Last block of each document may be a short block -- less than 1330 characters.

6. Character set is 8-bit EBCDIC.

7. One Carriage Control Character (CCC) precedes each logical record (print line) on the tape. The first record in each document begins with the numeral 1 (Hex F1). Each end-of-line character in the document is translated into the corresponding CCC and placed in the first position of the next record:

| End-of-Line | Carriage Control | |
|---|---|---|
| Auto Return (soft) | Space | (Hex 40) |
| Return (hard) | Space | (Hex 40) |
| End Paragraph | 0 | (Hex F0) |
| End Page (form feed) | 1 | (Hex F1) |

8. If a line in the input document is shorter than 132 characters, it is padded with spaces out to 132 characters before being put on the tape.

# ADVANCED SYSTEMS DESIGN AS AFFECTED BY EVOLVING STORAGE TECHNOLOGY

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*Level II*
*Wednesday Morning*
*June 25, 1980*

## ADVANCED SYSTEMS DESIGN AND STORAGE TECHNOLOGY

by Ted Helweg, Vice President, Bowne Information Systems, Inc.

The cornucopia of technological achievement obsoletes the user's comprehension almost monthly. In short, trying to select storage media could be likened to determining the cheapest air fare to the West Coast.

Seminar speakers like to think that they can communicate, but the counter-force to that suggestion is a quotation by the learned semanticist turned California Politician, Senator Hayakawa, who says: "You cannot be respected as a scholar if people understand what you say". Seminar speakers are also space-age oriented. By boosting a few modest facts far enough into the future they become prophets. Also, future projections are so abstract that the practical problems are minimal. In this session, the objective will be to consider and appreciate advanced technology, yet assess it against the pragmatic grid of fundamental operational considerations.

Storage technology affects every functional aspect of all computer based equipment and processors. For example, registers, buffers, and internal program memory modules are all forms of storage. Consequently, any substantial cost reduction in storage

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devices will cascade through the entire spectrum of internal, associated and peripheral storage elements. This discussion will be confined to storage technology as it affects the data base and its system design and will not discuss machine oriented advantages.

Before, we examine evaluative techniques, there are several new storage technology developments that warrant special attention.

## Magnetic Bubble Memory

General: Small cylindrical magnetic bubble formed in a single crystal thin film of synthetic ferrites. When an external magnetic field is applied to the film surface, the bubbles can be moved laterally through the film by using a varying magnetic field. These characteristics make the bubbles suitable for serial storage of data bits. The presence of a bubble represents a one ("1") and the absence of one represents a zero ("0"). Thus, binary representation of information can be accomplished. Since the diameter of a bubble is small (1/10 of a micrometer) many thousands of data bits can be stored in a single bubble memory chip.

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This concept was first introduced by Bell Telephone Labs in 1967.

Characteristics: Like magnetic tape and disk, bubble memory is nonvolatile, meaning that data is retained even when power is removed from the chip.

Since the bubbles are a product of solid state technology, there are no moving parts and, therefore, the bubble memories have high reliability and require no preventive maintenance.

Since the bubbles are small and lightweight they are suitable for compact designs and portable applications. 197

Ramifications: Great effect on microprocessor based systems which demand high density mass storage at low cost. Bubble memory satisfies that requirement.

Low price, nonvolatility and high density storage in a small physical space makes bubble memory ideally suitable for portable applications, as well as, providing memory for traditional processing systems.

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Solid state bubble memories are also more reliable in harsh environment because they are less affected by shock, vibration, dirt, and dust. Their use in products includes data terminals, calculators, word processing media, voice storage, and digital measurement devices.

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## Winchester Disc

General: A fixed disc that is eight (8) inches in diameter and can store up to 45 million characters of storage. W/P Customers are demanding increased capacity for document storage and it is provided by the Winchester. It provides for the capacity of 180 ordinary floppy eight (8) inch diskettes in the same physical space required for a standard eight (8) inch diskette drive.

The Winchester concept relieves not only a storage problem, but provides excellent economy per byte, as well as, working in a less noisy environment than many of the cartridge types 199
of storage.

The 14 inch Winchester Disc promises to eat into the traditional storage modules currently being used in the 80 to 300 megabyte range.

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## Optical Storage

This is currently under development by a number of users including some government agencies. Optical storage offers the ability to store billions of bits of information on a platter no larger than a frisbee. This disk developed by Philips of the Netherlands makes use of a telerium film on which memory bits are deposited. A laser beam is used to access the information.

## Thin Film Development

The new thin film read/write head will significantly improve disk drive price/performance. The thin film heads promise to increase storage capacities and produce higher throughputs in disk drives, and later on, with tape drives as well. The IBM 3350, for example, uses ferrite heads, records at some 50 tracks per inch (tpi), and packs approximately 6,000 bits per inch (bpi). But, in the newer 3370, with thin film heads, data is recorded at 635 tpi and along the track at 12,000 bpi. Thus, the areal density is more than doubled, to some 7.6 million bits per square inch.

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In addition to increasing the density and capacity of media, the new thin film technology provides a substantial improvement to the traditional ferrite heads. In the past, disc reading heads have written onto and read from only one track at a time, which required a repositioning of the head to the next track. With thin film it becomes practical and economical to produce multiple-track heads. This means, of course, that instead of having to reposition a head to read an adjacent track, one need only switch electronically from head-to-head. So, in effect this film technology achieves a larger cylinder and lowers the average access time. This becomes especially significant with the smaller eight (8) inch discs, where there isn't too much information stored in one cylinder.

The price of drives has remained fairly constant over the years. What brings down the price per megabit is a constant doubling in capacity, and this comes about because manufacturers keep increasing the areal densities by improving both media and heads.

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## Tape Drive Development

Tape technologies are advancing as rapidly today as in the past two decades. While much has been said concerning the "dying tape subsystem industry," STC believes the medium will continue to be highly sought after and widely used, particularly for interchange, journaling, archival and backup functions.

Tape will also continue to have virtually no competition as the highest density, lowest cost form of storage available, and emerging thin film technologies will serve to enhance this advantage. The continued success of nonremovable rigid disks subsystems will see the demand for high-performance tape grow (not diminish) especially as backup and recovery media.

Storage technology as related to data base design can be considered as an evaluation systems process with two major steps. First, to review the available information in the traditional hardware approach, and a second stage in which hardware factors are weighted with a time factor to yield a more comprehensive systems design selection.

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The consequences of the enormous variety of media and associated hardware is that it creates a contradictory media maze. A cursory look tends to enforce the notion that "bigger is better" because of cheaper per bit cost. It is an over-simplification to simply divide the number of bits of storage by the cost of the device, but it typifies a very human reaction to a complicated problem. However, simple hardware and media costs are a valid first stage approach and there are several common parameters.

The first of these is a simple consideration of capacity. Capacity on a per page basis started with the simple one card, one page concept of unit records that IBM first introduced in data processing, and then transferred successfully into the early days of Word Processing equipment. Over the past several years, WP watchers have witnessed the introduction of multi-page cassettes, mini-floppyies, floppyies, hard discs and have developed a growing awareness of the advantages of connecting into the larger computer systems, with their virtually unlimited storage capacities.

Media costs, that is the price of the card or the floppy, itself, as you might expect, are inversely proportional to the capacity. Technological cost trends favor cheap mass storage. If we were to look at the cost of the media, as a function of page costs,

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then the cost effectiveness of a larger system become very dramatic.

Each of the media examples selected has associated with it a certain amount of hardware overhead which allows it to function. In this case, the manufacturers have done some of the homework for you because in their race to remain competitive, their developments have atuned the storage capacity and type to the capability of their overall system. You do not find a major computer system being fed by mag cards, or a mag card word processor with on-line tape units for storage.

Generally, the larger the storage capacity associated with the media, the greater the hardware controller intelligence needed to access and manipulate it. For storage evaluation purposes, we have looked at the word processor only as a storage media controller, and calculated a simple monthly rental as a comparative profile.

Another cost-factor for our consideration is operator intervention. Each type of media requires varying degrees of operator involvement to manipulate a file. The cost of this "human" element must be included in the systems design process.

For example, if you are using mag cards and have a requirement to gain access to 100 cards out of a base of 3,000 cards, an operator has to feed and shuffle many cards to manually select the elements that are required. As you move into the cassette and floppy media, the packaging of multiple pages on the single storage element obviously reduces the human involvement and thus, the operator intervention cost. These costs include accessing the file, probing the information within the file, and displaying it for processing.

Labor costs for the operator has been assumed at $12 per hour. For example, the handling of one card would require 5 to 10 seconds, and these incur a six (6) cents expense for operator intervention cost.

Generally, the larger and more automated the system, the less operator intervention required. Once again, the obvious indicator seems to point towards the mass random storage approach because with larger systems there tends to be less operator intervention per unit of information. This may not appear at first glance to be significant if we compare 10 documents to 100 documents, but it could become dramatic when the comparison is between 1,000 documents and 10,000 documents.

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Last but not least, I want to give some perspective on the subject of communications as it affects storage media selection. One of the advantages of communications costs is that they are very visible and obvious. You do not need a chart to know that the longer the distance, the greater the cost; the higher the transfer rate, the higher the cost; and the longer you talk or transmit, the more you pay. Together with geography, the transmitting speeds, usage, and the quality of the line these factors determine communications costs. The communications cost increment is a straight addition to the overall expense. It affects storage design because it forces choices between duplicating files or having one file or data base available on-line to all locations.

Thus far, the majority of the foregoing comparisons are really nothing more than a Data Pro like listing. We have re-published, organized, re-arranged and presented information that the manufacturers have supplied. Although the information is valid, it does not furnish sufficient selection criteria to make a cost effective storage media and design recommendation.

Up to this point, all of our work has permitted us to gain a reputation as a hardware broker. For a more comprehensive selection process let's change hats and become a data base banker; one who looks at the total investment in storage rather than the hardware broker who sees only the media arithmetic as a basis of choice.

The role of the data base banker requires a different perspective. Information, like people, is not created equally. Your file and the storage thereof, is peculiar to you. There are operational characteristics that distinguish it from other information, and time related factors that have a value that are unique to your office. The time related criteria are new design considerations that force WP managers to have a more comprehensive grasp of storage technology and its impact upon overall information management objectives. The time related criteria are quite common to DP operations and are directly applicable to WP systems. These are some of the time-value concerns.

Frequency is the number of times a file is interrogated for any reason and it has two aspects. One, how many people or terminals access the data base, and two, at what rate does each user probe the file. A very low probe rate and a small number of users would mean that frequency demands are not significant and a storage choice could be made on the mundane basis of storage size and machine costs. On the other hand, many users interacting

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often with a single data base would dictate multiple terminals and probably some type of shared data base environment. One solution could be multiple stand-alone units with a communications capability to a central data base.

If each of the terminals probed the data base at a high rate, the traffic sequencing of the multiple information transfer would require rather sophisticated software and impose performance parameters upon the available storage.

To define Frequency in operational terms we have to consider another system factor called Response time. An airline reservation would be the epitomy of immediate response. The reservation systems usually have multiple, high rate users accessing a single data base. A name change in a mailing list for a monthly catalog distribution has similar Frequency characteristics in terms of number of users and multiple probes, but the Response time of the data base could be satisfied by batch techniques and react in terms of hours, if not days. Therefore, magnetic tape storage could satisfy the size and Frequency demands of the system because the Response time is slow. The airline reservation system with a similar size and Frequency demand, but a high speed Response criteria would mandate an on-line storage, such as discs.

Response time also applies to isolated systems and data bases. In these cases, Response time is directly related to operator intervention. By the use of a single floppy as an indexer, a rather large-scale data base can be controlled. The system Response time consists of the normal machine characteristics plus the time the operator needs to review the index disc, and manually select the appropriate floppy from a library file.

The Response time of a system with multiple data bases dictate a consideration of the communications costs versus the storage costs of duplicating the information. While distributed logic and its associated storage capacity has some obvious cost advantages, it also has some systems penalties in maintaining a consistent level of updated and accurate information in each storage element of the national network. Occasionally, confidentially considerations force a partitioning of a section of the data base, and confine its maintenance and access to one location. Response time and Frequency are relative to your business and application.

One of the more obvious time oriented considerations, is the subject of retention and use; occasionally, by law, by convenience, or by policy, certain information required by management. How much of the file is to be kept archival versus how much is held interactive has been a data processing problem since the early days of computers. Consideration is no less severe in text, except that there is a tendency to keep everything as we did in the age of carbon copies and multi-drawer files.

The final, and possibly most significant aspect of designing data bases and their associated systems is the analysis of the kind of internal manipulation that your data base is going to have to endure. This is the most sophisticated of all criteria. It encompasses the speed factors of user frequency and response and the additional dimension of data base elements interacting within the file to develop answers which are the result of a logical sequence of associated facts. In data processing a simple example of data base interaction would be invoicing, wherein, the customer name file is merged with a point of sale register input to create a bill. The complexity of the internal manipulation affects both hardware and software design and engenders another dimension called systems capability, which is related to systems costs and operator intervention.

Software packages have a most direct bearing on this aspect of the problem. A simple sort represents the lower end of the software application spectrum. Depending upon the manufacturer, you can sort by the page, by the floppy, by the entire hard disc, or the entire file. Multi-level sorts are becoming more common. They can be arranged in alpha or numeric sequence and ascending or descending order.

The next level of software would be math packages or special applications situations, and the high of the spectrum end characterized by special purpose libraries for specifications and programs that not only sort and probe for information, but arrange it, print it, and automatically transmit the results via electronic mail.

Another sophisticated example of software would be the ability to 211
probe a data base with a profile of associative facts that are significantly different than the initial data base cataloging. The greatest problem in managing almost any data base is to try to predetermine the proper categories and classifications of its content that will permit you to find and retrieve the desired text. If we knew in advance exactly what the format and characteristics of each probe would be, most data retrieval could be accomplished through a multi-level sort.

The software algorhythm that can probe a 50,000 document file and pick out widely scattered associative facts on each page,

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transcends, by a considerable magnitude, the more commonplace, global search or string search features that are common in many WP systems. The Software investment for these complex applications approaches seven figures. Most importantly, the very nature of the application demands massive areas of magnetic working storage, to permit a rapid interaction between the data base elements and the programmable search software. Therefore, the application is found most commonly in computer-based environments. The net result of the high speed storage and software is a fantastic response time within a huge data base with minimal operator intervention.

Fortunately, this awesome combination of storage technology and software power is available to us via communications. The computer industry has pioneered and perfected the interaction of small logic units with large computer complexes which have special program capabilities. It is not uncommon for small life insurance companies to do all of their actuarial calculations which are massive, multiple correlation and regression routines, on a computer at a central location.

The distributed logic phenomena has been established a long time in DP. The new storage technology developemnts will continue to encourage more innovative combinations of floppies, satelite hard

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discs, and small mini-based offices communicating with major networks in both an interactive and batch mode. The significance of the technological and readily available storage capability is that it influences the fundamental design and thus the cost of the system required to accommodate your application spectrum. In summary, let us look quickly at four common application areas and see how the data base banker might apply a selection criteria.

## LET YOUR APPLICATION BE YOUR GUIDE

I. Small Size, High Volume, Low Retention. The everyday correspondence, short memos, the five to six page reports - usually requiring minor revisions. -- Under these conditions, the most cost effective storage medium might well be a 100 page internal memory. At this level of application even mag cards might be an over-kill. However, if the need is to access a larger information bank, communications could be added to this very simple terminal and storage set up to accommodate the job.

II. Proposals and reports in excess of 30 pages, and not over 200, with fairly extensive new and added revisions in proportion to the pre-stored recorded material. -- Reports imply the need for lengthy retention and both format and content reuse, along with fairly extensive statistical manipulation. Both proposals and reports have many contributors who may not be geographically contiguous and there is a decided sense of urgency for timely completion. These applications could be satisfied by a floppy based system with communications or even OCR accessibility for input and the associated word power enough to handle the required editing. Frequency is limited and response is a scheduling problem from a systems design point of view. The greater intervention is balanced with the equipment editing power and the potential statistical work could be accommodated with special math or sort options.

III. Large contracts such as municipal bond offerings of 100 to 500 pages which have a need for immediate turnaround, rapid printing capability for multiple drafting and revisions, together with a condition where time and deadlines are important factors. -- The cheaper media, like a floppy, might be able to revise and handle document size, but the limits of the associated printer hardware might stifle the multiple drafts inherent with contracts and bond offerings. Also, the text manipulation may be too extensive and pagenating over two or more discs is cumbersome resulting in excessive operator intervention. This kind of condition could argue for moving the application up to a shared logic rigid disc, where a faster printer could be supported and used. The system design response time must consider to total span from initiation to the completion of the products. Handling the document simultaneoulsly is a storage problem, but the ability to accommodate a long but rapid printing requirement also enters into the decision.

IV. Examples of average large volume, multiple access, large frequency applications are impact statements of 5,000 to 20,000 pages being manipulated by multiple authors using various categories of terminals, and in widely scattered geographical locations. -- Such an application could probably be handled by a sophisticated shared logic system with communications, but the very size of the file and the archival commitments of voluminous engineering specifications may disqualify this approach. Even though the working storage capacity would be cost effective, the constant referencing of the many standard corporate specifications would dictate that the latter also be on-line to multiple users. In addition, most specification libraries are stored in a customized format which is interlocked with special specification editing programs.

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The result is that with minimum operator intervention an operator can edit, format and print from 30 to 40 final pages of specifications per hour. This is a classic example of software power and text capacity setting the parameter for the amount and type of storage required.

Another example might be a very large litigation file involving several hundred thousand documents. Multiple interrogations and users would be involved, and most importantly, the likelihood of seeking associative information from witnesses' depositions would be a high probability. This situation clearly would require virtually unlimited storage capability, rapid access, and super manipulation capabilities. In this class, you would be looking at something like the IBM STAIRS System, Lexis, or Bowne's KeySearch package. Any of these are available on either an in-house basis or within a communicating network environment.

## THE FUTURE ? ? ? ? ?

What about a quick look at the future. What are the troubles with bubbles? Like champagne, a concept of bubble memory rises to the top of our intellect very quickly. On our hardware cost graph it would fall off the bottom of the scale. On a per bit basis, all of the controllers inside of the modern word processing systems are some form of a mini-computer. As we have mentioned before, all mini-computers have registers, command structures, working storage, and operating storage. Each of these are kind of a memory, therefore, the cost reduction associated with bubble memory will undoubtedly tend to flatten out the hardware systems costs as well. Even operator intervention should be reduced because we can afford to package more functions together and automate to a greater extent the keyboard manipulation at the terminal level.

The caution with the bubbles might be that we have engineered a storage capacity for the Library of Congress, but without an indexing or search system. You could create the lowest cost mass of useless information storage on record. Software costs that permit the intelligent interrogation of the data base in the bubble memory environment are undoubtedly going to be the critical issue. The application packages will determine how significant and how effective the technological breakthrough will be.

Other dark horse situations are the Winchester Disc and optical storage. The optics people talk about billions of bits of information on a platter no larger than a frisbee, which is accessed by a laser beam. Again, these developments will have the same design consideration as the bubbles opportunity.

In conclusion, the pure consideration of selecting storage as a hardware function is misleading. The only true perspective for selecting storage is to assume that storage costs are zero. This will force the proper consideration of the time related factors of frequency, response, operator intervention and internal interfile manipulation. Like any professional investment counsellor, the data base banker must have a diversified portfolio and a look at the total systems investment. Only then will you be prepared to comprehend the proper requirements of your application spectrum.

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## APPENDIX

### COST OF MEDIA ITSELF

This chart uses a base that a page equals 2,500 characters:

| Type of Media | Cost of Media | Cost per Page |
|---|---|---|
| Mag Tape | $ 19.00 | $ .21 |
| Mag Cards | .36 to .88 | .09 to .44 |
| Tape Cassette | 6.00 | .19 |
| Floppy Diskette | 8.00 | .08 |
| Mini Floppy | 5.00 | .21 |
| Rigid Disc | 5,000.00 | .01 |

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## ADVANCED SYSTEMS DESIGN AND STORAGE TECHNOLOGY

### MEDIA STORAGE CAPACITIES

| Type | Storage Capacity |
|---|---|
| Mag Cards | 2 - 5 pages |
| Mag Tape | 10 pages |
| Tape Cassette | 32 pages |
| Mini Floppy | 24 pages |
| Floppy | 100 pages |
| Hard Disc | 400 - 120,000 pages |
| Mainframe System | Virtually unlimited |

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# ADVANCED SYSTEMS DESIGN AND STORAGE TECHNOLOGY

## COST OF THE HARDWARE/CONTROLLER

This chart compares typical hardware/controller costs to use various storage media. Hourly equipment costs were determined simply by dividing the dollar investment by 36 months, the assumed life of the equipment.

| Type of Media | Hardware/Controller Cost | Cost Per Use/Hour |
|---|---|---|
| Tape Cassette | $ 8,795 | $ 1.70/hr |
| Mag Card | 11,600 | 2.10/hr |
| Floppy Diskette | 14,590 | 3.00/hr |
| Shared Logic | 25,000 | 4.35/hr |
| Hard Disc | 47,000 | 7.25/hr |
| Computer System | 200,000 & up | 35.00+/hr |

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## COST OF OPERATOR INTERVENTION

For comparisons, we made these assumptions. Labor costs for the operator is $12 per hour. Calculations would show that the handling on one card would require five to ten seconds and would incur a $ .06 in operator intervention cost. (Here, one page or 2,500 characters of information is equal to one mag card):

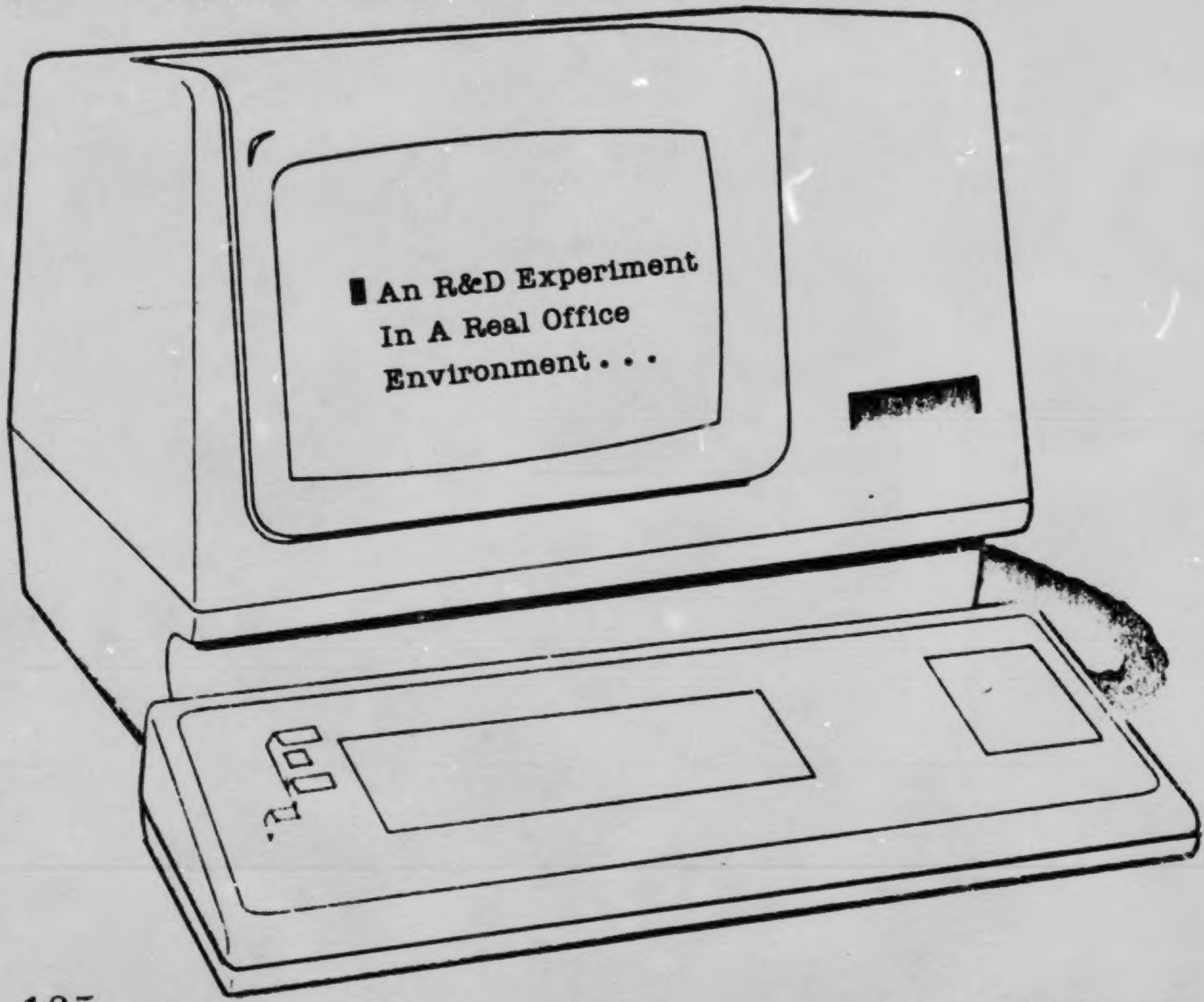
| Type of Media | Operator Intervention 10 Pages | Operator Intervention 100 Pages | Operator Intervention 1000 Pages |
|---|---|---|---|
| Tape Cassette | $1.20 | $12.00 | $120.00 |
| Mag Card | .65 | 6.50 | 66.50 |
| Floppy Disc | .15 | .15 | 3.40 |
| Rigid Disc | .06 | .06 | .06 |
| Computer System | .01 | .01 | .01 |

# A MULTI-FUNCTION OFFICE SYSTEM — WE'RE USING IT! (A CASE STUDY)

Edward Scott, Jr.
Assistant Secretary for Administration
Department of Transportation

*Level II*
*Wednesday Morning*
*June 25, 1980*

# TAOS Transportation Automated Office System


An R&D Experiment
In A Real Office
Environment . . .

A MULTI-FUNCTION OFFICE SYSTEM--WE'RE USING IT!

DEPARTMENT OF TRANSPORTATION · UNITED STATES OF AMERICA

EDWARD W. SCOTT, JR.
ASSISTANT SECRETARY FOR ADMINISTRATION

# INTRODUCTION

## Transportation Automated Office System—TAOS

Office management problems confronting this Department are similar to those faced by other large public and private organizations. Information is being produced more rapidly than our current office systems can process it.

In the United States, office workers account for 50 percent of the workforce and 66 percent of national payroll cost. At DOT, white collar workers comprise 53 percent of the workforce, slightly higher than the national percentage.

Within this context, administrative information costs in offices are rising faster than productivity rates. Administrative overhead costs have now grown to 40-50 percent. Moreover, while these overhead costs have almost doubled in the past decade, productivity has increased only four percent.

While office staff costs are rising, computer technology costs have steadily dropped in recent years. In the face of these changes, new office technology offers the potential to significantly increase productivity and employee effectiveness.

The Office of the Assistant Secretary for Administration began to explore the area of office automation in the summer of 1977. These initial efforts were directed toward determining what objectives should be pursued in the area of multi-functional office automation over the next 5 to 10 years and what could be done in the near future. The outcome was a unique experimental pilot project to demonstrate that multi-functional office automation can significantly improve the overall operating efficiency, productivity and effectiveness of the office environment. The Transportation Automated Office System (TAOS) Project was designed as a demonstration R&D project involving the offices of several senior executives. TAOS objectives are to:

- Gain knowledge which can be applied to planning, implementing and operating future office automation systems;
- Demonstrate that office automation can be employed to significantly enhance both the effectiveness of DOT managers and policymakers and the general productivity of their workforce;
- Provide education to DOT executives and planners regarding emerging office technologies;
- Conduct assessment and demonstration of cost-effective office automation in a test-bed within DOT;
- Satisfy existing and new workload requirements by providing more powerful office work stations at lower cost;
- Determine state-of-the-art of current office technology and future direction of automated office systems; and
- Share knowledge with other DOT and Federal managers on the planning and management of office systems.

The plan of the pilot project is to transform the office from a manual environment to an integrated electronic office, providing immediate access to information needed for planning and directing the offices under the jurisdiction of the Assistant Secretary for Administration—7 offices and nearly 800 employees. While many processes are interdependent, such as typing, message handling, suspense control, and executive calendar management, the tools used for these processes have not been integrated. Through this pilot demonstration effort, TAOS will attempt to provide a technologically

A MULTI-FUNCTION OFFICE SYSTEM--WE'RE USING IT!

integrated system to support a variety of tasks. We anticipate that the following board areas will have the most significant payoff in our environment:

- Calendar
- Word Processing
- Electronic Mail
- Directories
- Telephone Log
- Tickler
- Special Functions

While TAOS is being developed to meet real-world operational needs, it also serves as an experimental research and development "test bed". The goal of TAOS is improving DOT's use of general purpose automation in the integration of our office functions.

TAOS is currently running on a mini-computer using specialized systems software developed by Bell Laboratories and application programs developed by DOT. Application software has been written to support executive calendars, telephone log, special directories, word processing, and electronic mail. The system is in operation in the immediate office of the Assistant Secretary for Administration and supports 25 work stations including executives, managers and secretarial support staff. The current plan is to extend TAOS to approximately 100 users by July 1980 and to exercise the system thoroughly in a multi-organization, "production" setting. At this point, careful productivity and user impact analyses will be performed to determine the efficacy of the system and the options for future development. Applications are under development for suspense file handling, electronic file system, and special computational tools.

For further information, contact Edward W. Scott, Jr., Assistant Secretary for Administration, on (202) 426-2332, Cheryl S. Veit, Acting Chief, OST System Support Staff, on (202) 755-1752, or Susan L. Stillman, on (202) 755-1752.

# Toward a Transportation Automated Office System

A MULTI-FUNCTION OFFICE SYSTEM--WE'RE USING IT!

①

## The Automated Office

*DEFINITION*

*THE SYSTEMATIC APPROACH TO USING COMPUTER SUPPORT TO PERFORM TRADITIONAL OFFICE FUNCTIONS*

*i.e. "MULTI-FUNCTIONAL" OFFICE COMPUTING*

②

## Why Now?

- *CLIMATE IS RIGHT*
- *TECHNOLOGY IS AVAILABLE*
- *PAYOFF CAN BE SIGNIFICANT*

③

## Special Impetus in Government

- **PROPOSITION 13 PHENOMENON**
  - — TOO MANY PEOPLE
  - — BETTER SERVICE
- **BALANCED BUDGET**
  - — CAMPAIGN FOR CONSTITUTIONAL CONVENTION

④

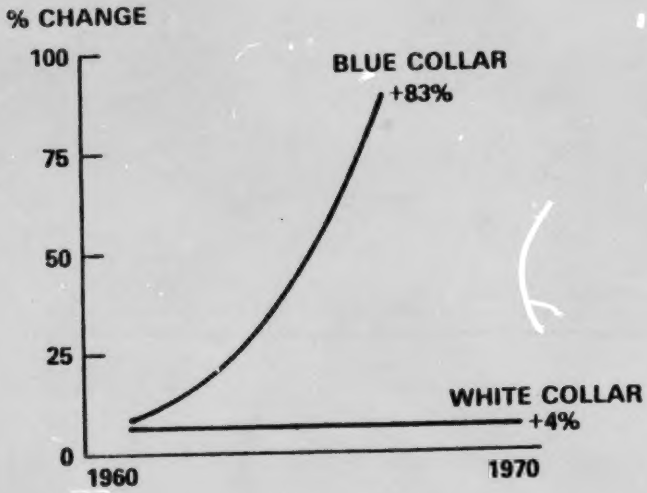
## Employment by Major Occupational Group

| WORKERS | U.S. (MILLIONS) | | DOT | |
|---|---|---|---|---|
| WHITE-COLLAR | 44.8 | 50% | 40,000 | 53% |
| BLUE-COLLAR | 29.5 | 33% | 6,000 | 8% |
| SERVICE | 12.3 | 14% | N.A. | N.A. |
| OTHER | N.A. | N.A. | 29,000 | 39% |
| FARM | 2.7 | 3% | N.A. | N.A. |
| TOTAL | 89.3 | 100% | 75,000 | 100% |

OFFICE WORKERS ACCOUNT FOR
66%
OF THE COST OF THE NATIONAL PAYROLL

⑤

## Productivity Trends



⑥

## Interesting Trends in the Office

- Overhead Costs

*1960's 20-30%*
*1970's 40-50%*

- Cost of Business Letter

*1965 $2.44*
*1975 $3.79*
*1980 $6.79*

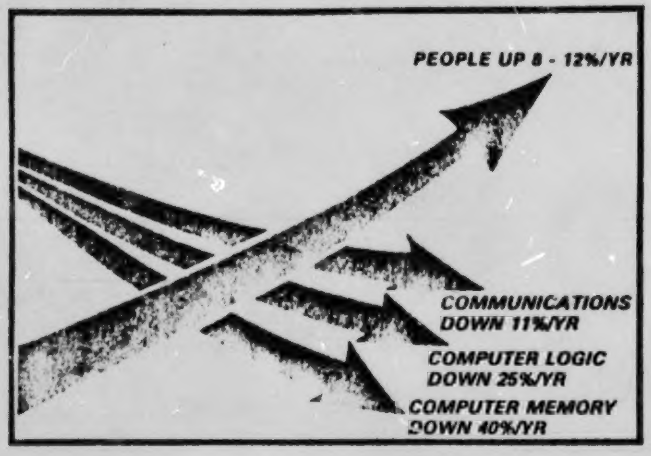
- Equipment Investment per Employee

*1975 $2,000/Year*
*1985 $8,000/Year*

*(Blue Collar Investment in 1977—$25,000 Year)*

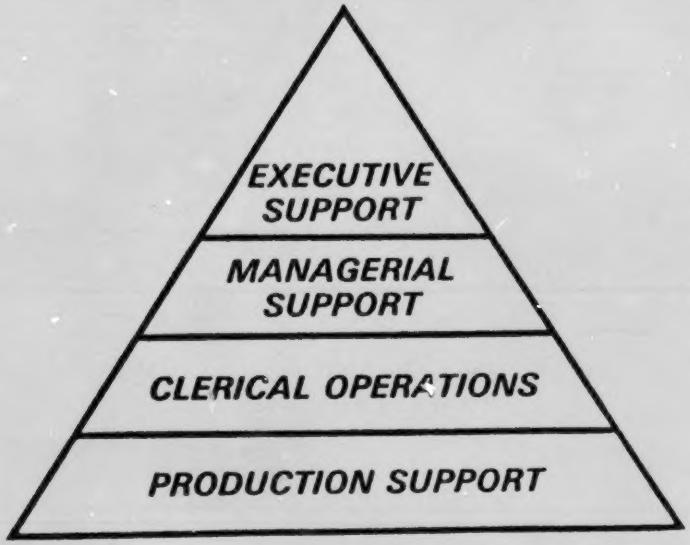
⑦

## Changing Costs Over the Next Decade



⑧

## Select Emphasis Area



EXECUTIVE SUPPORT

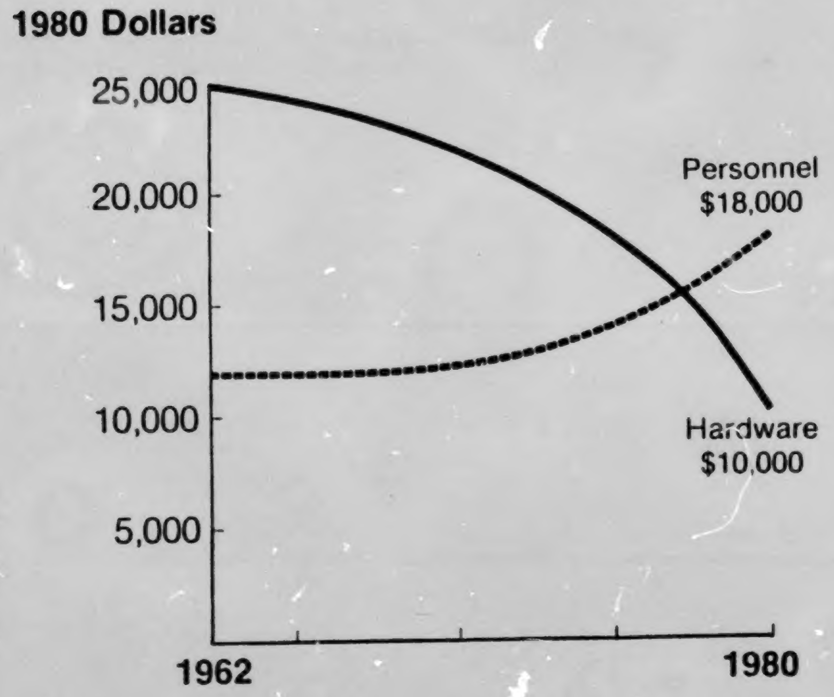
MANAGERIAL SUPPORT

CLERICAL OPERATIONS

PRODUCTION SUPPORT

⑨

## Hardware/Personnel Cost Relationships Overtime



⑩

## Employment Statistics

| | U.S. | DOT |
|---|---|---|
| PRINCIPALS | 27.1 MILLION | 22,800 |
| EXECUTIVES | 4% | 2% |
| MANAGERS | 21% | 17% |
| PROFESSIONALS/ STAFF | 75% | 81% |

MILITARY AND AIR TRAFFIC CONTROLLERS EXCLUDED

⑪

## *Obstacles to Implementation*

- *DISPERSED RESPONSIBILITY FOR OFFICE MANAGEMENT*
- *BUDGET CONSTRAINTS*
- *FEAR OF CHANGE*
- *NO ONE VENDOR SYSTEM OFFERS COMPREHENSIVE SET OF CAPABILITIES*
- *FRENZY IN MARKET HAS USERS CONFUSED*
- *BAD INTRODUCTORY EXPERIENCES*

⑫

# *The Automated Office*

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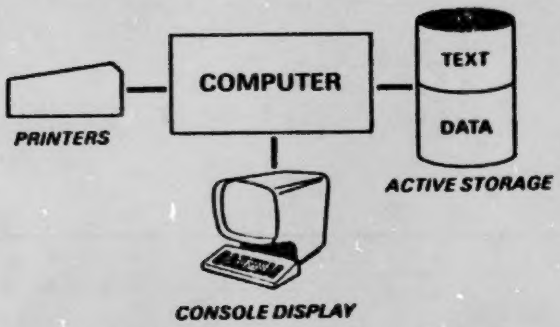
## *A PARADIGM System*

⑬

## System Components

### Central Facility

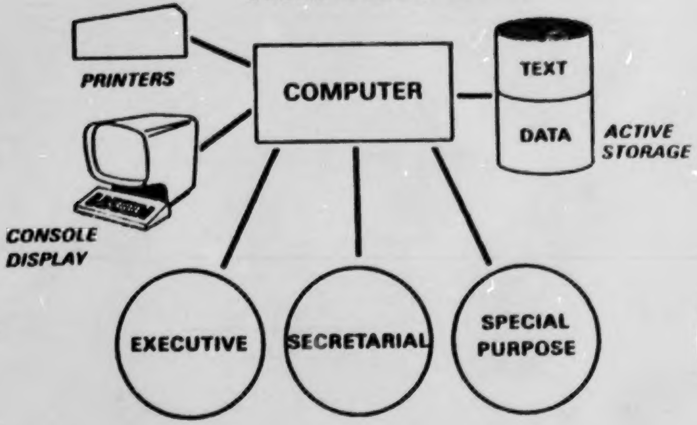

COMPUTER
TEXT
DATA
PRINTERS
ACTIVE STORAGE
CONSOLE DISPLAY

- *LARGE SCALE CENTRAL COMPUTER*
- *STAND-ALONE MINI COMPUTER*
- *COMMERCIAL TIME SHARED COMPUTER*

⑭

## System Components

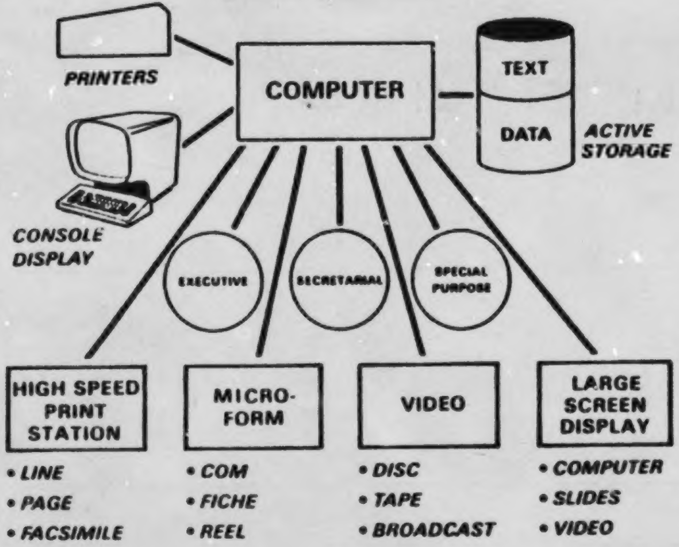
### Work Stations


PRINTERS
COMPUTER
TEXT
DATA
ACTIVE STORAGE
CONSOLE DISPLAY
EXECUTIVE
SECRETARIAL
SPECIAL PURPOSE

⑮

## System Components

### Other Stations



PRINTERS

CONSOLE DISPLAY

COMPUTER

TEXT

DATA

ACTIVE STORAGE

EXECUTIVE

SECRETARIAL

SPECIAL PURPOSE

**HIGH SPEED PRINT STATION**
- LINE
- PAGE
- FACSIMILE

**MICRO-FORM**
- COM
- FICHE
- REEL

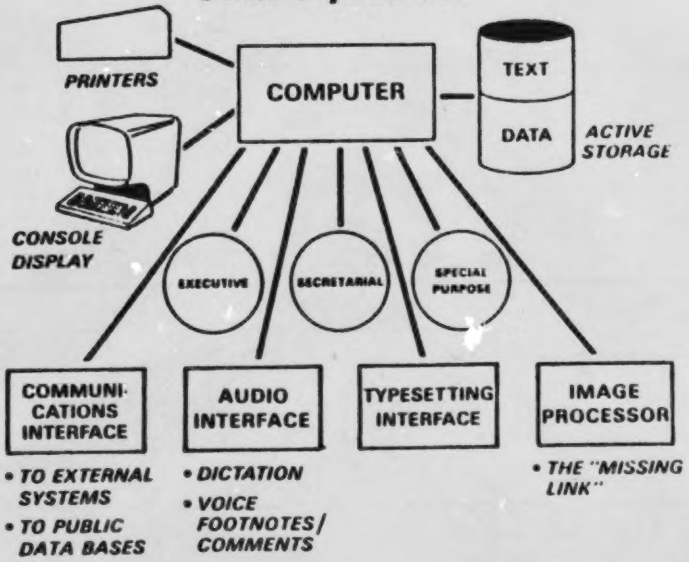
**VIDEO**
- DISC
- TAPE
- BROADCAST

**LARGE SCREEN DISPLAY**
- COMPUTER
- SLIDES
- VIDEO

⑯

## System Components

### Other Capabilities



PRINTERS

CONSOLE DISPLAY

COMPUTER

TEXT

DATA

ACTIVE STORAGE

EXECUTIVE

SECRETARIAL

SPECIAL PURPOSE

**COMMUNICATIONS INTERFACE**
- TO EXTERNAL SYSTEMS
- TO PUBLIC DATA BASES

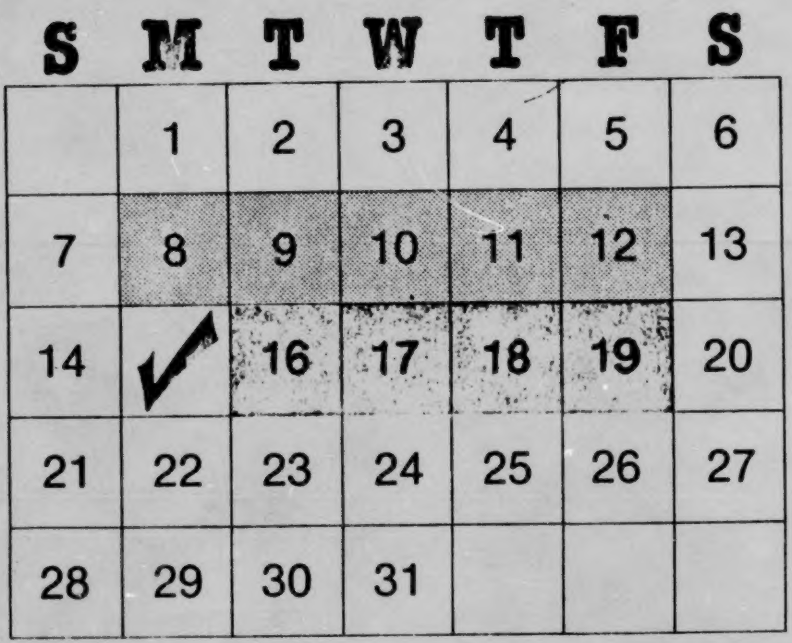
**AUDIO INTERFACE**
- DICTATION
- VOICE FOOTNOTES/ COMMENTS

**TYPESETTING INTERFACE**

**IMAGE PROCESSOR**
- THE "MISSING LINK"

⑰

## Turnaround Time



| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
|  | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | ✓ | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 |  |  |  |

⑱

# The Transportation Automated Office System TAOS

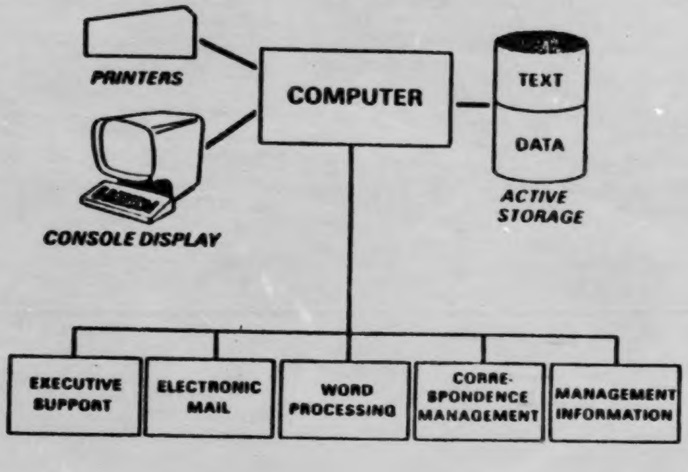
⑲

## TAOS
## Design Concept

- *USER INTERFACE IS EASY*
  - *– MENU ORIENTED*
  - *– FORMS DRIVEN*
  - *– SELF INSTRUCTING*
- *EXECUTIVE AND SECRETARY ARE A TEAM*
  - *– INTERDEPENDENT WORK STATIONS*
  - *– SHARED FILE ACCESS*
- *EXECUTIVE'S IMMEDIATE STAFF IS A WORK GROUP*
  - *– COMPOSED OF INDEPENDENT WORK STATIONS*
  - *– WITH A NEED TO SHARE INFORMATION*
  - *– WITH A NEED FOR FREQUENT INFORMAL COMMUNICATION*

⑳

## System Components
## TAOS


PRINTERS

CONSOLE DISPLAY

COMPUTER

TEXT

DATA

ACTIVE STORAGE

EXECUTIVE SUPPORT

ELECTRONIC MAIL

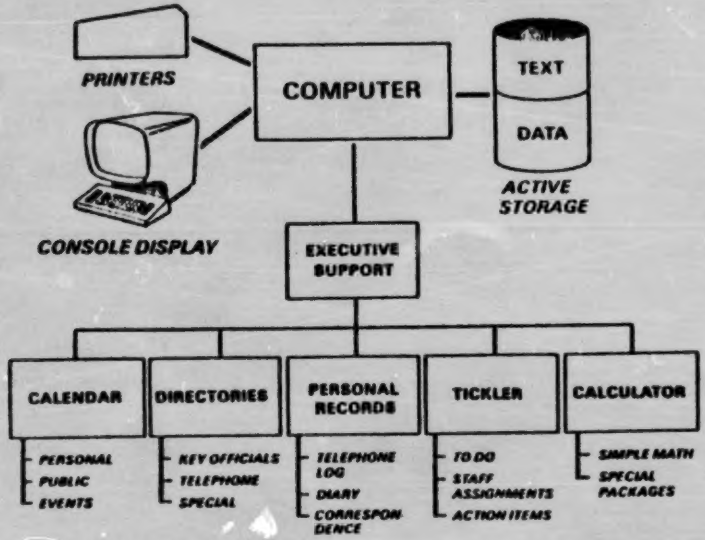
WORD PROCESSING

CORRESPONDENCE MANAGEMENT

MANAGEMENT INFORMATION

㉑

## System Components
### TAOS



PRINTERS

COMPUTER

TEXT

DATA

ACTIVE STORAGE

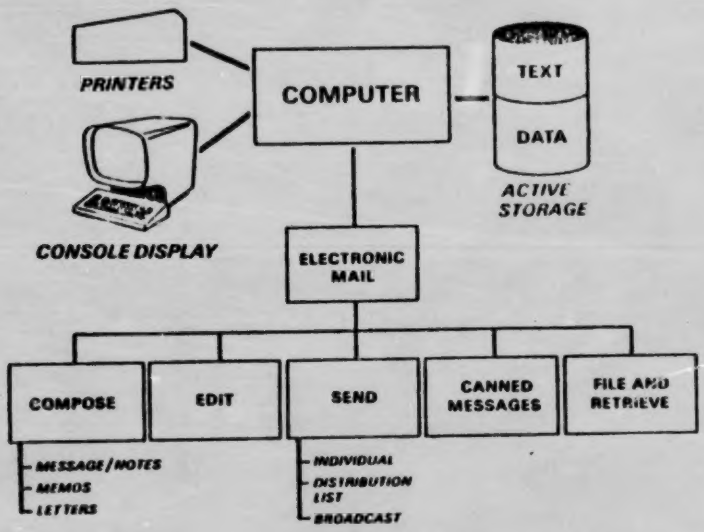
CONSOLE DISPLAY

EXECUTIVE SUPPORT

- CALENDAR
  - PERSONAL
  - PUBLIC
  - EVENTS
- DIRECTORIES
  - KEY OFFICIALS
  - TELEPHONE
  - SPECIAL
- PERSONAL RECORDS
  - TELEPHONE LOG
  - DIARY
  - CORRESPONDENCE
- TICKLER
  - TO DO
  - STAFF ASSIGNMENTS
  - ACTION ITEMS
- CALCULATOR
  - SIMPLE MATH
  - SPECIAL PACKAGES

㉒

## System Components
### TAOS



PRINTERS

COMPUTER

TEXT

DATA

ACTIVE STORAGE

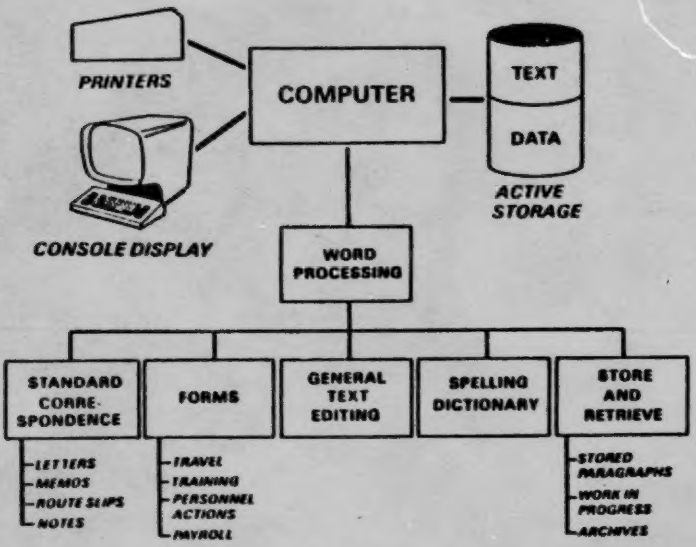
CONSOLE DISPLAY

ELECTRONIC MAIL

- COMPOSE
  - MESSAGE/NOTES
  - MEMOS
  - LETTERS
- EDIT
- SEND
  - INDIVIDUAL
  - DISTRIBUTION LIST
  - BROADCAST
- CANNED MESSAGES
- FILE AND RETRIEVE

㉓

## *System Components*
## *TAOS*


PRINTERS

CONSOLE DISPLAY

COMPUTER

TEXT

DATA

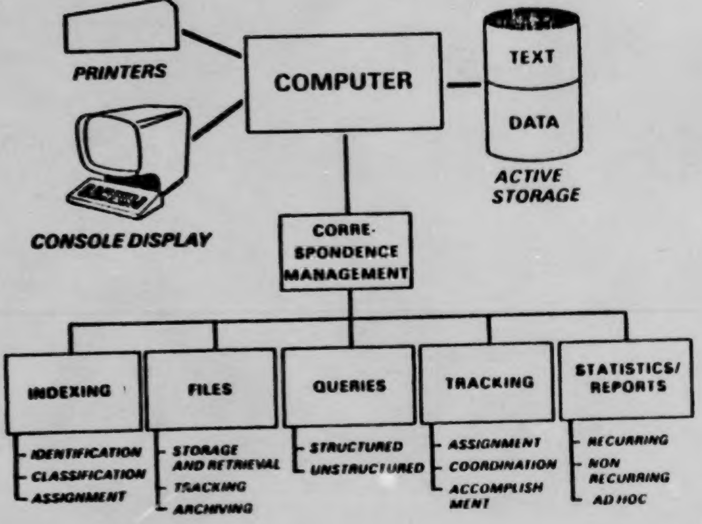
ACTIVE STORAGE

WORD PROCESSING

- STANDARD CORRESPONDENCE
  - LETTERS
  - MEMOS
  - ROUTE SLIPS
  - NOTES
- FORMS
  - TRAVEL
  - TRAINING
  - PERSONNEL ACTIONS
  - PAYROLL
- GENERAL TEXT EDITING
- SPELLING DICTIONARY
- STORE AND RETRIEVE
  - STORED PARAGRAPHS
  - WORK IN PROGRESS
  - ARCHIVES

㉔

## *System Components*
## *TAOS*


PRINTERS

CONSOLE DISPLAY

COMPUTER

TEXT

DATA

ACTIVE STORAGE

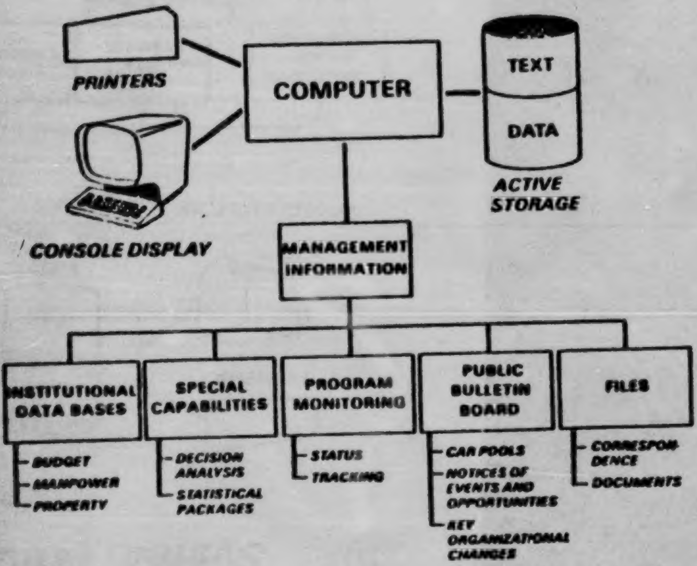
CORRESPONDENCE MANAGEMENT

- INDEXING
  - IDENTIFICATION
  - CLASSIFICATION
  - ASSIGNMENT
- FILES
  - STORAGE AND RETRIEVAL
  - TRACKING
  - ARCHIVING
- QUERIES
  - STRUCTURED
  - UNSTRUCTURED
- TRACKING
  - ASSIGNMENT
  - COORDINATION
  - ACCOMPLISHMENT
- STATISTICS/REPORTS
  - RECURRING
  - NON RECURRING
  - AD HOC

A MULTI-FUNCTION OFFICE SYSTEM--WE'RE USING IT!

㉕

## System Components
## TAOS


PRINTERS
COMPUTER
TEXT
DATA
ACTIVE STORAGE
CONSOLE DISPLAY
MANAGEMENT INFORMATION
INSTITUTIONAL DATA BASES
BUDGET
MANPOWER
PROPERTY
SPECIAL CAPABILITIES
DECISION ANALYSIS
STATISTICAL PACKAGES
PROGRAM MONITORING
STATUS
TRACKING
PUBLIC BULLETIN BOARD
CAR POOLS
NOTICES OF EVENTS AND OPPORTUNITIES
KEY ORGANIZATIONAL CHANGES
FILES
CORRESPONDENCE
DOCUMENTS

A MULTI-FUNCTION OFFICE SYSTEM--WE'RE USING IT!

# ㉖ Through Office Automation We Remove From The Principal's Desk —

Typical "Clutter"

**BEFORE**

***The:***

- Calendar
- Personal Notes
- Working Papers
- In Box/Out Box
- Action Lists
- Tickler Files
- Calculator
- Travel/Expense Voucher
- Personal Files
- Office Copier
- Roll-O-Dex File
- Text Preparation/Editing
- Spelling Dictionary
- Telephone Log
- Organization's Telephone Book
- Telephone/Auto Dialer
- Clock
- Personal Diary

Single I/O Device

**AFTER**

A MULTI-FUNCTION OFFICE SYSTEM--WE'RE USING IT!

㉗

# Anticipated Outcomes

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## Where Will All This Lead Us?

- ACCESS TO COMPUTER POWER AT EVERY DESK
- EVERY OFFICE IS A LINK IN A TELECOMMUNICATION NETWORK
- ORGANIZATIONAL DATA BASE IS UNIVERSALLY AVAILABLE
- FASTER ACCESS TO INFORMATION AND CO-WORKERS
- MORE PAPER THROUGHPUT
- MORE ADMINISTRATIVE POWER TO MORE PEOPLE

**More Cost-Effective**
**Business**
**and**
**Government**

# PROMOTING WORD PROCESSING: A LESSON IN PUBLIC RELATIONS

Jan Duffy
Partner
Duffy and Bentley Consulting Group

*Human Resources*
*Wednesday Morning*
*June 25, 1980*

## PROMOTING WORD PROCESSING - A LESSON IN PUBLIC RELATIONS

> "We have proven the word processing concept works for various applications. Now we're starting to work on our professional image."
> Camille Grejczyk as quoted in Word Processing
> Systems a Geyer-McAllister publication.

In order to maintain the high profile and positive acceptance enjoyed when word processing is initially introduced into an organization and to avoid development of negative attitudes, the Manager of the Word Processing System is required to act as a public relations officer on an ongoing basis.

The lines of communication between user and system manager must remain open in order to ensure the development of a professional rapport, which is necessary if the system is to consistently meet the needs of the users it was intended to support. 247

As the Word Processing Manager, encourage feedback, do not wait for the users to come forward with their problems. Keep an open door for subordinates, peers and superiors. It is important not to become buried in paper, people are easily discouraged by someone who always appears too busy to discuss a problem.

Remember that people recognize and appreciate someone who is helping them, particularly one who volunteers to help and does not sit around waiting to be asked. Enquire of the users whether service is satisfactory, turnaround time adequate, quality acceptable. Follow up with the users on a regular and continuing basis.

## PROMOTING WORD PROCESSING - A LESSON IN PUBLIC RELATIONS

The most effective method of ensuring constant goodwill between the system and its users, is the provision of consistently high quality work. Pay particular attention to quality control, work produced in the requested format, without errors, assures the users that their requests are being handled in a professional manner.

When talking, listen to yourself once in a while, often the impact of a statement depends on how the words are spoken as much as what is said.

If the "Ten Rules of Congeniality" are followed as a standard practice, communication will generally improve and a firm foundation will be formed on which to build professional relationships. These rules are appended to this paper.

Orientation sessions are vitally important to the success of your public relations efforts. Hold an open house, explain how the centre/satellites operate and how work is processed. The users need to know how priorities are handled, how the dictation equipment is accessed, the proper procedure for making editorial changes, retention policies, etc.

It is imperative that both the user and the word processing manager understand who has the responsibility for what. If, for example, the responsibility for final proofreading of typed work lies with the author, then this should be discussed and clearly understood.

All of this information should be included in a User Manual, which must be a quality product if it is to be retained and used. The content should be user friendly and neither frightening nor lengthy.

Credibility is a fragile thing and once lost can be extremely
difficult to regain - on a day to day basis much is dependant
on the image projected by a department. A vital part of this
image is appearance, in order to achieve professional status
and standing with your colleagues it is important for you,
your staff and your department environment to look efficient
and to function effectively. The word processing department
should run like a well oiled machine, ensure that someone is
fully trained to run the department in your absence.
Encourage good housekeeping habits, a messy environment can
act as a deterrent to potential users, particularly those who 249
are concerned about "things getting lost in the system".

Design all forms, folders, binders, etc. to reflect the desired professional image. Tatty, dog-eared file folders are not impressive! Consideration should be given to colour coding all word processing control systems. These are all factors which contribute to the total picture of word processing as seen by the organization.

To be successful, a Word Processing Manager or Supervisor must be self-motivated and also be able to motivate subordinates, peers and superiors (to use the system, increase productivity, dictate effectively, etc.). Instilling motivation requires a person to understand each individual's personality traits, only when this understanding has been achieved can the motivational factors influencing each person be determined.

While it is accepted that informed people are happier people, before others can be educated, effort must be concentrated on self education.

Professional word processing people are concerned about the total cycle of information handling, from its generation through to its disposition. This requires an active interest in all facets of office operation.

In order to progress within an organization, particularly within the information/word processing environment, study of the following disciplines must form part of an ongoing educational program:

- Data Processing/Telecommunications
- Administration/Financial Planning
- Behavioural Sciences/Human Relations
- Word Processing/Phototypesetting
- Space and Facilities Planning
- Systems Analysis

Continue with this program and do not hesitate to advertise the achievements of the Word Processing Department, its staff and of course any personal accomplishments. Word Processing and its related technologies can make a very lively and interesting story, write an article for the company magazine or newspaper; distribute a quarterly word processing update;

subscribe to several magazines which describe the progress currently being made by word processing and make them available to members of the organization.

Remember, Word Processing is a combination of PEOPLE, PROCEDURES AND EQUIPMENT, and avoid becoming trapped into concentrating on equipment efficiency at the expense of serving user needs.

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PROMOTING WORD PROCESSING - A LESSON IN PUBLIC RELATIONS Appendix

## TEN RULES OF CONGENIALITY

When dealing with other people, the secret of congeniality is politeness, consideration for others and good manners.

1. Use the other person's name often, we tend to be negligent about this courtesy.

2. Be certain to say thank you when someone does something for you, whether or not you requested assistance.

3. Always keep confidential information confidential.

4. Do not make promises unless you are absolutely certain they can be kept.

5. Seek advice and opinions, others appreciate this expression of confidence in their capabilities.

6. Praise should be used often, too many times we only communicate with others when we have negative comments to make.

7. ACT cheerful, even if you don't feel cheerful and go out of your way to help others.

8. Be sensitive to people's moods and tailor your conversation accordingly.

9. Be a good listener and when someone turns to you for help, be tactful and sympathetic.

10. Remind yourself that people see things differently from each other. Allow them the right to be different and treat each person as an individual.

# SUCCESSFUL IMPLEMENTATION
# OF A
# WP/AS SYSTEM

Donna Lee Cheney
Director of Consulting Operations
Info-Graphics

*Level I*
*Wednesday Afternoon*
*June 25, 1980*

# PEOPLE MAKE WORD PROCESSING SYSTEMS SUCCESSFUL

# NOT EQUIPMENT

# ALTERNATIVES TO THE EXISTING SYSTEM

- WORD PROCESSING MAY OR MAY NOT BE AN ALTERNATIVE. IF IT IS NOT AN ALTERNATIVE, THE FOLLOWING COULD BE POTENTIAL ALTERNATIVES:
    - CHANGE IN COPY FLOW AND PROCEDURES
    - PERSONNEL/MANAGEMENT MODIFICATIONS
    - WORD PROCESSING SUPPORT THROUGH A CENTER.

- IF WORD PROCESSING IS AN ALTERNATIVE IT SHOULD BE JUSTIFIED BY MEETING VOLUME REQUIREMENTS, TURNAROUND TIMES, AND ECONOMIC JUSTIFICATIONS.

# DEVELOP AN IMPLEMENTATION SCHEDULE, SET DEADLINES, PREPARE A FLOW CHART TO INCLUDE:

FINAL EQUIPMENT DESIGN & SELECTION OF A SUPPLIER

SITE PREPARATION

SELECTION OF A MANAGER AND SUPERVISOR (S)

STAFF SELECTION

DEVELOPMENT OF PROCEDURES

DEVELOPMENT OF TRAINING SCHEDULES & PROGRAMS

# CONSIDERATIONS TO BE MADE BEFORE IMPLEMENTING WORD PROCESSING

- WORD PROCESSING SHOULD BE CONSIDERED A PRODUCTION "TOOL."
- WORD PROCESSING DOES NOT HAVE TO BE CENTRALIZED TO BE EFFECTIVE
- WORD PROCESSING EQUIPMENT IS NOT DIFFICULT TO LEARN TO USE
- WORD PROCESSING SHOULD BE CONSIDERED A CORPORATE RESOURCE
- THE WORD PROCESSING SYSTEM SHOULD BE FLEXIBLE

## PITFALLS TO AVOID

- ALL TYPING APPLICATIONS DO NOT BELONG ON A WORD PROCESSOR
- LESS THAN 45% OF TIME ON A KEYBOARD - QUESTIONABLE COST JUSTIFICATION OF WORD PROCESSING
- BE AWARE OF DIFFERENCES BETWEEN WORD PROCESSING & DATA PROCESSING TERMINALS
- INCLUDE APPROPRIATE STAFF IN EQUIPMENT DECISION

## FIVE CATEGORIES OF WORD PROCESSING EQUIPMENT

- ELECTRONIC TYPEWRITERS
- STANDALONE CRT TERMINALS
- SHARED LOGIC SYSTEMS
- COMPUTERIZED WORD PROCESSING
- TIME-SHARING WORD PROCESSING

## SELECTION OF A SUPPLIER

- CHECK-OFF LIST
- SALES PRESENTATIONS (At Least Three Suppliers)
- REQUEST FOR PROPOSAL
- EQUIPMENT DEMONSTRATIONS
- FINAL SELECTION
- SET DELIVERY DATE
- DEVELOP TRAINING SCHEDULE FOR OPERATORS & SUPERVISORS

## SAMPLE SUPPLIER CHECKLIST

| SUPPLIER | COST | EQUIPMENT RELIABILITY | USER NEEDS | CUSTOMER SERVICE REPUTATION | SYSTEM RECONFIGURATION CAPABILITIES | SOFTWARE AND HARDWARE AVAILABILITY | BUSINESS BUSINESS RELIABILITY | TOTAL POINTS |
|---|---|---|---|---|---|---|---|---|
| A | 14,000 | 10 | 10 | 9 | 10 | 6 | 10 | 55 |
| B | 15,000 | 8 | 8 | 10 | 10 | 10 | 10 | 56 |
| C | 15,000 | 10 | 10 | 8 | 10 | 10 | 5 | 53 |
| D | 15,000 | 8 | 8 | 8 | 5 | 10 | 8 | 47 |
| E | 13,000 | 8 | 8 | 9 | 0 | 10 | 10 | 45 |

## SITE REQUIREMENTS & PREPARATIONS

- DETERMINE THE AMOUNT OF FLOOR SPACE NEEDED
- DETERMINE THE NEED (if any) FOR SPECIAL ELECTRICAL REQUIREMENTS
- DETERMINE COSTS
- SCHEDULE CARPENTERS, ELECTRICIANS AND MOVERS

# SELECT A MANAGER AND SUPERVISOR (S)

# POSSIBLE APPROACHES TO STAFFING WORD PROCESSING SYSTEMS

- ONGOING IN-HOUSE TRAINING PROGRAMS
- DECENTRALIZED WORD PROCESSING
- INTERNAL JOB POSTING
- LOCAL EQUIPMENT SUPPLIER REPAIR PERSONNEL
- TRADE, VOCATIONAL, SECRETARIAL & HIGH SCHOOL GRADUATES
- LOCAL IWP CHAPTER
- PERSONNEL AGENCIES
- NEWSPAPERS, TRADE JOURNALS AND IWP NEWSLETTER ADS

## POSSIBLE APPROACHES TO REPLACING STAFF IN EXISTING WORD PROCESSING SYSTEMS

- FOLLOW THE STEPS IN THE PRECEDING SLIDE
- RE-EVALUATE CURRENT EQUIPMENT - WILL UPGRADING OR REPLACING THE SYSTEM SOLVE PART OF THE STAFFING PROBLEM?
- RE-EVALUATE EXISTING WORD PROCESSING LOCATIONS - WOULD DECENTRALIZED TERMINALS BE MORE ADVANTAGEOUS THAN CENTRALIZED?
- RE-EVALUATE JOB DUTIES AND RESPONSIBILITIES OF WORD PROCESSING POSITIONS
- DEVELOP CAREER PLANS CONNECTED WITH WORD PROCESSING

# DEVELOP PROCEDURES

- COPY FLOW PROCEDURES
- EQUIPMENT UTILIZATION PROCEDURES
- MEDIA UTILIZATION PROCEDURES
- SPECIAL APPLICATION PROCEDURES
- INTERFACING PROCEDURES
- GENERAL OFFICE PROCEDURES
- DEVELOP ALL INTO A PROCEDURAL MANUAL

# RESULTS OF THE PROPER USE OF WORD PROCESSING

- IMPROVED TURNAROUND TIME
- IMPROVED QUALITY
- REDUCED PROOFREADING TIME

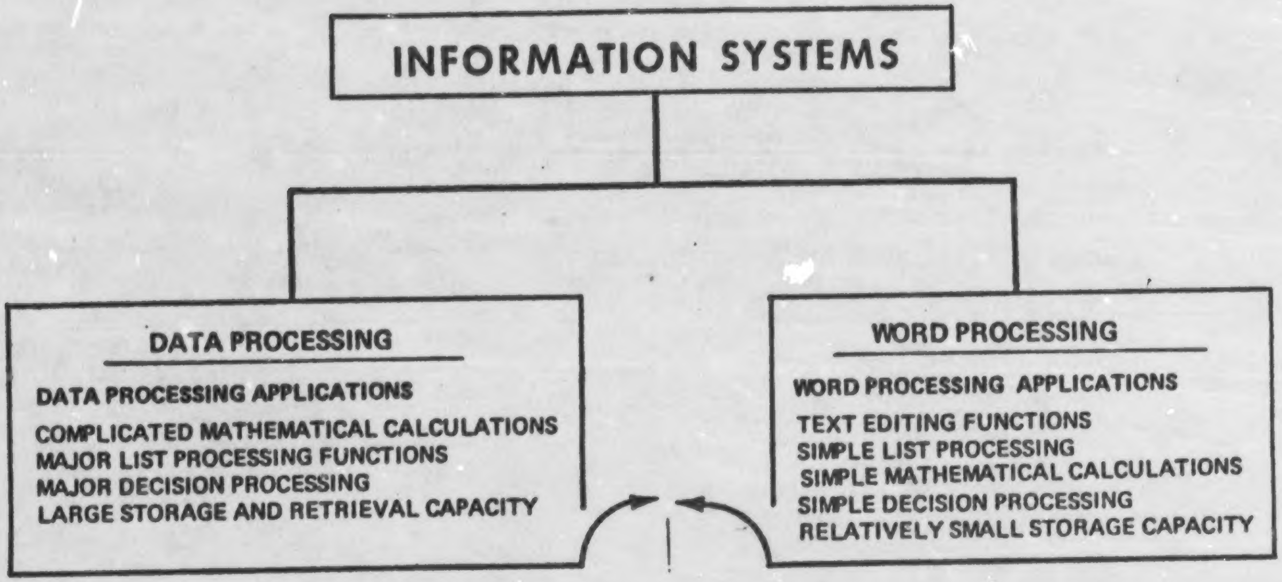
# DEVELOP TRAINING SCHEDULES & IN-HOUSE SEMINARS

## PRODUCTIVITY BENEFITS OF WORD PROCESSING

- APPROXIMATELY 50% IMPROVEMENT IN SECRETARIAL PRODUCTIVITY
- LESS TIME SPENT BY PRINCIPAL IN PREPARING & APPROVING DOCUMENTS
  - — PROOFREADING TIME SHORTENED
  - — SUBSTANTIAL IMPROVEMENT IN DOCUMENT TURNAROUND TIME
  - — SUBSTANTIAL IMPROVEMENTS IN FILE MAINTENANCE & MANIPULATION
  - — SUBSTANTIAL IMPROVEMENTS IN THE ABILITY TO ACCESS & DISSEMINATE UP-TO-DATE INFORMATION

# WORD PROCESSING INTERFACE CAPABILITIES

- COMMUNICATIONS (ELECTRONIC MAIL)
- DATA PROCESSING
- OPTICAL CHARACTER READER
- PHOTOTYPESETTING



INFORMATION SYSTEMS

**DATA PROCESSING**

DATA PROCESSING APPLICATIONS

COMPLICATED MATHEMATICAL CALCULATIONS
MAJOR LIST PROCESSING FUNCTIONS
MAJOR DECISION PROCESSING
LARGE STORAGE AND RETRIEVAL CAPACITY

**WORD PROCESSING**

WORD PROCESSING APPLICATIONS

TEXT EDITING FUNCTIONS
SIMPLE LIST PROCESSING
SIMPLE MATHEMATICAL CALCULATIONS
SIMPLE DECISION PROCESSING
RELATIVELY SMALL STORAGE CAPACITY

# FUTURE TRENDS

THE OFFICE OF TOMORROW WILL PROVIDE:

- LESS EXPENSIVE MULTI-FUNCTIONAL TERMINALS AT ALL LEVELS FOR INFORMATION CAPTURE, STORAGE AND DISSEMINATION.
- GREATER USE OF OPTICAL CHARACTER RECOGNITION (OCR) EQUIPMENT
- IN-HOUSE PHOTOCOMPOSITION
- HI-SPEED PRINTERS (When A Paper Copy is Required)

# REASONABLE EXPECTATIONS OF THE OFFICE OF TOMORROW

AN INTEGRATED NETWORK OF COMPUTERS AND COMMUNICATION DEVICES USED AS PRODUCTION TOOLS TO PROVIDE INFORMATION FASTER TO ALL LEVELS.

MORE ACCESSIBLE INFORMATION WILL HELP MANAGEMENT MAKE FASTER DECISIONS AND PROVIDE BETTER SERVICES TO THE CUSTOMER.

**WORD PROCESSING**

**SHOULD BE CONSIDERED**

**A PRODUCTION "TOOL."**

# ADDING PHOTOCOMPOSITION CAPABILITIES

## PART ONE

Bert Boucher
Independent Consultant

*Level I*
*Wednesday Afternoon*
*June 25, 1980*

## What is Typesetting?

. . . a serial print-out method used to produce originals for duplication.

A **typewriter** can be used to produce originals for reproduction, and often is . . .

But a **phototypesetter** provides incremental proportional spacing, a range of sizes and typeface variety.

A phototypesetter produces a series of photos of characters — in sequence like a typewriter strike-on printer, from keystrokes or memory.

After photography, output is processed, or developed, resulting in an image on paper like any other printer.

Typesetting and printing are inter-related, but not directly related.

Typesetting is a high quality method of **Print-out** from a text editor or word processor — usually used to produce originals for duplication.

5) Resulting in Quality Output

6) Which can be pasted up or composed into...

7) Fully assembled pages

8) For the plate making camera

9) and on to reproduction

10) It all starts with keyboard input on a basic text editor like this AM 225

11) or on a programmable CRT Word Processor such as this AM 425 -- a typical stand alone unit designed to provide facile editing onto a magnetic medium and serial print-out on a typewriter quality printer.

12) or on a Typesetting Work Processor such as this Comp/Edit -- Essentially the same unit as the previous slide with a phototypesetter printer replacing the typewriter printer.

The difference between typewriter and typesetter is the output printer.

The text editing function and possibly the editor itself remains the same.

Some of the differences are...

14) Most typewriter printers are restricted to one face in one size

15)

16) & 17) Whereas phototypesetters contain several font masters or one font master with as many as 16 alphabets

All available in a range of sizes...

18) Characters are flashed onto the photo material by a moving carriage assembly like this...

19) In a system like this

**Resulting in high quality print out with typographic "fit" of proportionally spaced characters**

ifreahCPENK

1234 5 6 7 8 9 10 11 12 [illegible] 14

**In *a* variety of faces**

and a range of **sizes**

21) Definitions - Some of the differences result in terminology which can be defined quite simply, and illustrated as follows:

22) Picas and points

23) Point size range

24) **Kerning**

25) **Ragged right, left & center**

26) **Letterspace** addition

27) Hanging Indentions

28) Paragraph & text indentions

29) Ligatures

30) Foreign **languages** pi characters

31) Cut run **arounds**

32) Design indentions & run arounds

33) Skew right and left

34) Tabular & math

35) Forward & reverse leading

Use the **KIS** method to understand the terminology

Keep It Simple

and avoid this feeling

37) WHY TYPESET

38) WHY TYPESETTING

39) COMPACTION AND THE CAPTURED KEYSTROKE

PROPORTIONALLY SPACED TYPESET DOCUMENTS TAKE LESS SPACE ON A LINE--
AND VERTICAL INCREMENTAL SPACING PROVIDES MORE LINES PER PAGE--
WITH AN INCREASE IN READABILITY!

A SAVINGS OF:
73% OVER DOUBLE SPACED 10 PITCH TYPEWRITTEN COPY
35% OVER SINGLE SPACED 12 PITCH TYPEWRITTEN COPY
AND OVER 20% OVER SINGLE SPACED 12 PITCH TYPEWRITTEN
PHOTO REDUCED BY 25%

41) COMPACTOR EXAMPLE

THE CAPTURED KEYSTROKE VIRTUALLY ELIMINATES

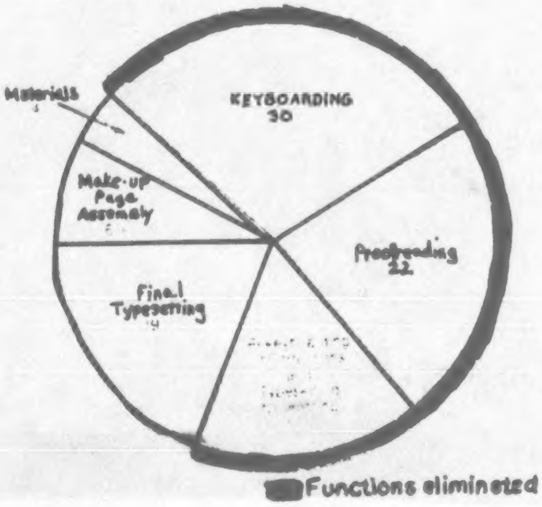
RE-KEYBOARDING

RE-PROOFREADING

RE-CORRECTING

FOR TYPESETTING

SAVINGS THROUGH KEYSTROKE CAPTURE!



HAVING A POSITIVE IMPACT ON 69% OF THE COST OF TYPESETTING!

43) Principle of document effectiveness
44) Chance are that the document was expensive and time consuming to prepare
45) Typesetting over Typewritten
46) Is reorganization necessary? Must all typists become typesetters?
47) How do we become compatible?
48-60) The Physical Interface Story
61) Capture Keystrokes as a by product . . .
62) Interface — people & systems
63) Basic paper work flow

**Text preparation and editing is common to all text and document preparation systems — and is done by a person with W/P Skills producing the CONTENT of the document.**

**Reproduction for Distribution - First step is the preparation of an original using special formatting and assembly by machine make-up and/or paste up techniques producing the FORM of the document.**

**Content** is prepared in a secretarial environment by someone skilled in operation of a Multi-Functional Word Processing Text editing system.

66-70) Multi-functional word processing text editing system

71) Almost 2 years ago, Aaron Burns characterized these people as *typographists* — people who prepare input for typesetting, but do not qualify as *typographers*

72) They produce the *content* — the corrected edited document information in a machine readable medium — and the skilled typesetter, or typographer produces the *form*

73) A typographer marks up the copy with typesetting instructions

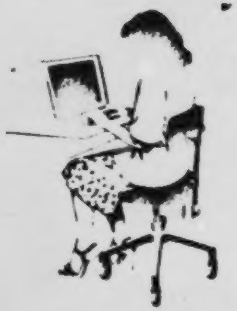
74) and command codes are entered through a document processing system or terminal

75) or a stand alone editing phototypesetter

## Content into form — using two disciplines

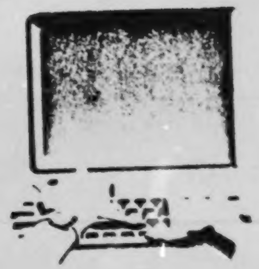
### A. CONTENT

Author



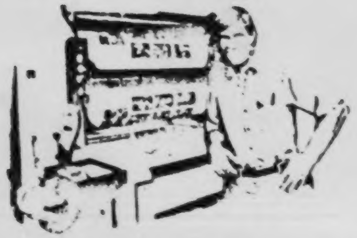
Office Text Editor

### B. FORM



Typographer

PTS



Reproduction

# ESTABLISHING EFFECTIVE WORK MEASUREMENT FOR WORD PROCESSING

Mary Ruprecht
Consultant
Mary Ruprecht & Associates

*Level I*
*Wednesday Afternoon*
*June 25, 1980*

# INTRODUCTION

The increasing use of word processing concepts has brought about a need for ongoing cost justification and productivity measurement in order to establish benchmarks for future management decisions. Those areas of cost justification and productivity measurement are:

- -logging of time and production counts to measure workload
- -preparing management reports in an understandable format
- -applying established productivity guidelines (standards)

Electronic devices on the market that have provided methods for production reports, workload controls, workload distribution, and chargebacks are:

- -Lanier Monitor
- -Lanier Manager
- -Dictaphone Master Mind
- -Dictaphone Time Master

Some organizations are using:

- -line counters
- -keystroke counters
- -computer input

Whatever the selected form, one thing is certain...you will (if not already) be called upon to measure employee productivity. One sign of a good manager is to foresee this requirement and start today.

## ESTABLISHING EFFECTIVE WORK MEASUREMENT FOR WORD PROCESSING

SINGLE AND DOUBLE

SPACE

LINE COUNTER

# LOGGING PROCEDURES

Daily manual logs or equipment logs should provide:

1) Individual and department served
2) Type of machine used
3) Type and number of documents keyboarded (hard copy, remote dictation, statistical, etc.)
4) Method of input
5) Time and date received
6) Time and date completed
7) Time and date delivered
8) Secretary completing work
9) Number of errors
10) Number of priorities handled

## WORD PROCESSING CENTER

## USER REPORT

WEEK OF ____________________

TOTAL LINES PRODUCED ______________

| DEPARTMENT/INDIVIDUAL | REGULAR LINES | STAT. LINES | REVISION LINES | PRIORITY LINES | TOTAL LINES | % |
|---|---|---|---|---|---|---|
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(SAMPLE)

ESTABLISHING EFFECTIVE
WORK MEASUREMENT FOR
WORD PROCESSING

## LOG SHEET

Disc #
Cassette #
Mag Card # __________ Operator ____________________ Date ______________

| DOCUMENT NO. | ORIGINATOR | REV. | RUSH | DESCRIPTION | DATE |  | TIME |  | LINE COUNT |
|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | IN | OUT | IN | OUT |  |
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| TOTAL |  |  |  |  |  |  |  |  |  |

LINE COUNT:

Regular __________
Statistical __________
Revision __________
Error __________

TOTAL __________

Mary M Ruprecht & Associates, Inc.

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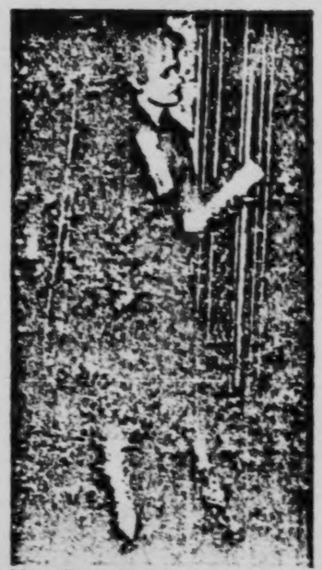
# Word Processing

## Evaluating & reporting wp operator productivity



Mary Ruprecht fields questions at an International Word Processing seminar on Effective Word Processing Work Measurement. —Photo by Dwight B. Davis

By Dwight B. Davis
Minicomputer News

NEW YORK — Managers of firms incorporating word processing equipment into their operations need to be well informed about the ongoing benefits provided from their investment, both for reassurance and for an understanding of the company's future needs. To ensure the value of this information requires the establishment of productivity guidelines, the logging of time and production counts and the compilation of management reports, according to Mary M. Ruprecht, president of the Duluth, MN consulting firm Mary Ruprecht & Associates.

Speaking at the International Word Processing Association's Spring Symposium, Ruprecht said there are several major concerns of word processing departments faced with the need to report to management. Variations in document types can cause record keeping headaches, as can a lack of before and after benchmark data.

Many also fear getting bogged down in too much record keeping or being stuck with rigid standards that don't change with evolving work demands. But the biggest concern, and the mistake to be most strenuously avoided, according to Ruprecht, is to rely upon standards solely for work evaluation by neglecting human relations.

Ruprecht acknowledged that sometimes morale problems result when employees in a word processing department may have to work with standard guidelines when the department next door may not operate in a similar fashion. However, she maintained that all departments should, in fact, have production standards. "If employees know their employer's expectations they meet them," she said, "and are happier because of the standards."

### Average WP standards

Although standards are necessary, they are not so easily calculated, according to Ruprecht. She presented a set of average acceptable word processing standards calculated from a major survey she conducted under the auspices of the IWP.

For starters, the average productive time per day for a WP employee is five hours, she said, after allowing for fatigue and personal time. Basic averages for calculations are 5 characters per word and 10 to 12 words or 56 to 65 characters per line. An 8-1/2 by 11 page carries 30 lines double spaced and 55 to 60 lines single spaced. A double-spaced 8-1/2 by 14 page translates into 45 to 55 lines; a similar single-spaced page totals 75 to 80 lines.

Given these guidelines, Ruprecht listed the production lines per day for operators of electric typewriters, magnetic media typewriters, microcomputer-based systems and minicomputer-based systems. The output lines, rated as outstanding, superior, acceptable or unsatisfactory, give a clear indication of an electric typewriter's limitations.

An outstanding operator using an electric typewriter can produce 500 or more lines each day, Ruprecht said. On the other equipment extreme, an outstanding operator using a mini-based system could produce 4000 or more lines each day.

Acceptable daily line production for operators of electric typewriters, magnetic media typewriters, micro-based and mini-based systems is, respectively, 200 to 250; 500 to 1000; 900 to 1500; and 1000 to 2500. "In general, the average productivity on electronic typewriters, is about one-third the work produced on word processing equipment," Ruprecht claimed.

### Logging and reporting data

Once guidelines are set, the word processing department should have a standard format to log production information, according to Ruprecht. Daily logs should provide information about:

- Individual and department served
- Type of machine used
- Type and number of documents keyboarded
- Method of input
- Time and date delivered
- Operator completing work
- Number of errors
- Number of priorities handled

Currently, only two WP vendors offer supervisory workstations that can provide the necessary daily log information, according to Ruprecht — Lanier and Dictaphone. With these supervisory stations, reports can be generated immediately or within 10 to 15 minutes, she said, a task that requires an operator up to 45 minutes per day to perform manually.

Daily logs, either manually or electronically generated, have the added benefit of "tending to increase executive integrity," Ruprecht claimed. Accurate time records protect the word processing department from executive claims that an operator received certain work earlier, or completed it later, than was actually the case.

Executives should also become more productive along with their staff, Ruprecht asserted, since an inefficient boss results in poor use of word processing capabilities. For example, work created by longhand can be produced at about 10 to 12 words per minute; work created by a trained and experienced dictation operator can be produced at 80 to 120 wpm.

Proper use of word processing equipment results in savings of managerial time plus the hard cost savings of greater productivity, Ruprecht said. WP also permits cost avoidance, by limiting future staff growth demands, and saves expenditures for overtime and temporary help.

ESTABLISHING EFFECTIVE WORK
MEASUREMENT FOR WORD PROCESSING

# AVERAGE ACCEPTABLE STANDARDS IN WORD PROCESSING

## WORD

5 characters per Word

## AVERAGE WORK DAY

7.5 hours - average work hours
1.5 hours - (less) fatigue time
6.0 hours - productive day
LESS
1.0 hours - personal time
5.0 hours - productive time per day

## AVERAGE DICTATION RATES

| | |
|---|---|
| Work created by longhand | 10 - 12 wpm |
| " " " shorthand | 25 - 30 wpm |
| Work created by machine: | |
| -Inexperienced dictator | 60 wpm |
| -Trained dictator | 80 wpm |
| -Trained & Experienced | 80 - 120 wpm |

## LINE

10 - 12 words per line
56 - 65 characters per line

## PAGE

8½ x 11 = 30 - 33 lines double spaced
8½ x 11 = 55 - 66 lines single spaced
8½ x 14 = 45 - 55 lines double spaced
8½ x 14 = 75 - 80 lines single spaced

## AVERAGE TRANSCRIPTION RATES

| | |
|---|---|
| -Longhand | 25 - 30 wpm |
| -Shorthand | 40 - 45 wpm |
| -Hard Copy | 55 - 60 wpm |
| -Machine | 65 - 75 wpm |

## AVERAGE TYPING RATES

| | |
|---|---|
| -National average typing rate by traditional secretary on electric typewriter (U. S. Navy study) | 12 - 15 wpm |
| -on Magnetic media | 40 wpm |
| -on Microcomputer | 69 wpm |
| -on Minicomputer | 111 wpm |

## PRODUCTION LINES PER DAY BY MACHINE CATEGORY

| TYPE OF MACHINE | OUTSTANDING | SUPERIOR | ACCEPTABLE | UNSATISFACTORY |
|---|---|---|---|---|
| Standard Electric | 500 & over | 250 - 500 | 200 - 250 | Less than 200 |
| Magnetic Media | 1450 & over | 1000 - 1450 | 500 - 1000 | Less than 500 |
| Microcomputer | 2500 & over | 1500 - 2500 | 900 - 1500 | Less than 900 |
| Minicomputer | 4000 & over | 2500 - 4000 | 1000 - 2500 | Less than 1000 |

Mary M Ruprecht & Associates, In

## MANAGEMENT QUESTIONS

YOUR REPORTING SYSTEM SHOULD BE EQUIPPED TO ANSWER SUCH MANAGEMENT QUESTIONS AS:

1) What will this operation cost me?

2) Why is it better than the system I have now? How do I know it is being used and how many people will continue to use it?

3) How does this affect the bottom of my financial statement called NET PROFIT?

4) How do I know this profitability is continuing?

5) How many people will this eliminate or cost avoid?

6) How well are we utilizing our costly equipment and labor?

7) How can you accurately gauge production against cost?

# CHECK YOUR REPORTS

1 Is the objective clear?

2 Is this (report) the right communication media?

3 Are there control dates and specified quantities?

4 Use clear statements...can they be misunderstood?

5 Use concrete words...avoid abstracts

6 Is is (the report) positive?

7 Use short sentences

8 Keep it simple

9 Request feedback

10 Include Who, How, What, When, Why and Where

# COST JUSTIFICATION

Any successful word processing administrative support operation must produce continuing and definable cost savings. To determine cost savings, itemize operating costs.

1 Equipment
2 Labor
3 Supplies
4 Overhead

**EQUIPMENT**

1 leasing equipment
2 renting equipment
3 purchasing equipment
4 maintenance agreements

**SUPPLIES**

1 ribbons
2 media
3 paper
4 etc

**LABOR**

**Salary, including fringe benefits:**

...insurance programs
...retirement funds
...social security
...educational programs
...etc

**OVERHEAD**

1 space
2 rent
3 heat
4 light
5 depreciation
6 janitorial
7 maintenance services

## FACTORS TO REVIEW

## WHEN SELECTING WORD PROCESSING EQUIPMENT

..... Available money and firm policy regarding purchase versus rent or lease

..... Type of work to be done

..... Expected turnaround time

..... Skill and experience level of available personnel

..... Available software

..... Number of pieces of equipment needed

..... Storage needs

..... History of service

..... Financial stability of vendor

- Availability
- Credibility
- Serviceability

# ADDING PHOTOCOMPOSITION CAPABILITIES

## PART TWO

Bert Boucher
Independent Consultant

*Level I*
*Wednesday Afternoon*
*June 25, 1980*

## What is Typesetting?

. . . a serial print-out method used to produce originals for duplication.

A **typewriter** can be used to produce originals for reproduction, and often is . . .

But a **phototypesetter** provides incremental proportional spacing, a range of sizes and typeface variety.

A phototypesetter produces a series of photos of characters — in sequence like a typewriter strike-on printer, from keystrokes or memory.

After photography, output is processed, or developed, resulting in an image on paper like any other printer.

Typesetting and printing are inter-related, but not directly related.

Typesetting is a high quality method of **Print-out** from a text editor or word processor — usually used to produce originals for duplication.

5) In a system like this

6) Why typeset for reproduction?

**Because of the Economics of**
**Compaction &**
**The Captured Keystroke**
**and**
**The Principle of Document**
**Effectiveness**

8) What should be typeset?

9) Estimated that 70% of multiple page reproductions are typewritten.

10) But what price is paid?

**Chances are . . .**

**The Economics of Compaction & The Captured Keystroke will reduce the cost of reproduction and Distribution so the typesetting will be "Free"!**

12) Can you afford to have it lack effectiveness?

13) Economy of compaction & the captured keystroke

14) Compaction savings

15-19) Compaction examples

20) Space savings summary

21) Which means . . .

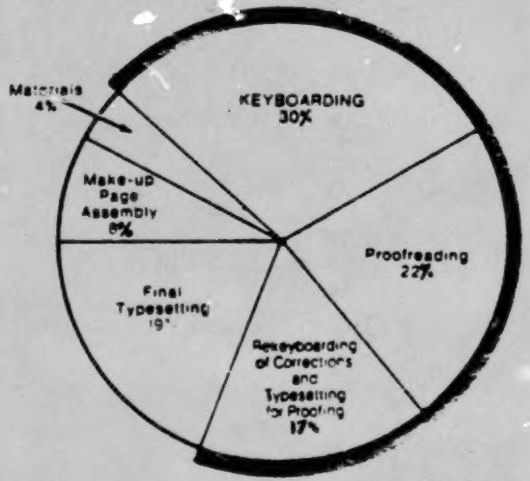
Reduction of number of Pages through Typesetting effects **DRAMATIC** savings in **Time** and **Expenses** required for:

Reproduction
Collating
Binding
Storage
&
Distribution

More than offsetting time and expense of the typesetting function for multiple page, multiple copy documents.

23) The captured keystroke
25) Re-keystroke
26) Re-proofread
27) Re-correct
28) For typesetting
29) Percentage of costs for the professional typesetter

## Costs of typesetting



## -functions eliminated

31) Savings — in the real world what can we expect to save?

## Summary of Economics of Compaction & The Captured Keystroke

I. **Compaction** - Page reduction through typesetting of 20% to 73%, reducing cost of reproduction & distribution by a mean average of **46%**.

II. **Captured Keystroke** - Virtual Elimination of Re-Keyboarding, Re-Proofreading & Re-correcting for typesetting impacting costs by up to 69%. Average savings @ 1/3 of present cost.

33) Typesetting "Free" zone

34) Principle of document effectiveness

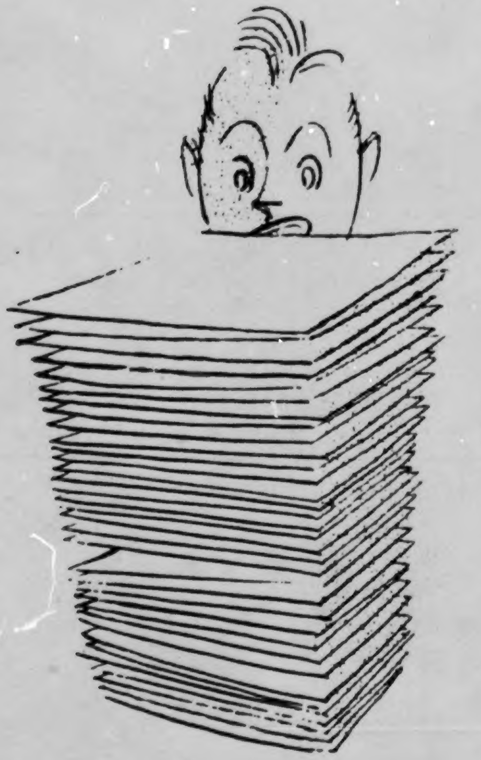
**A Document can be Well Prepared . . . with considerable executive level input, and professional editorial "packaging" . . .**

**It can be well written containing important and interesting information . . .**

**It can be professionally produced . . . Printed out on a correspondence quality printer and reproduced by top notch offset duplication . . .**

**AND STILL LACK EFFECTIVENESS!**

## The Document May Lack EFFECTIVENESS Because of . . . BULK



**500 pp. vs. 135 pp.**

307

**Making it harder to distribute, to handle while reading, and to carry in a brief case.**

## The Document May Lack Effectiveness Because of . . .

## APPEARANCE

A. Here again, it is a matter of incremental values, photo material can index, foreward or reverse, in steps as small as 144 to the inch (½ point steps) and as large as 2.28 to the inch (31½ point steps). Changing from 6 lines to the inch (12 points) to 7.2 (10 points) for example, will provide more than 18 lines in the same space formerly occupied by 15 with no less in readability.
Typesetting offers finer
horizontal spacing, ther
fit of the letters, and
quired for the same word
are much smaller, with t

**Typewriter**

A. Here again, it is a matter of incremental values, photo material can index, forward or reverse, in steps as small as 144 to the inch (½ point steps) and as large as 2.28 to the inch (31½-point steps). Changing from 6 lines to the inch (12 points) to 7.2 (10 points) for example, will provide more than 18 lines in the same space formerly occupied by 15 with no loss of readability.

**Typeset**

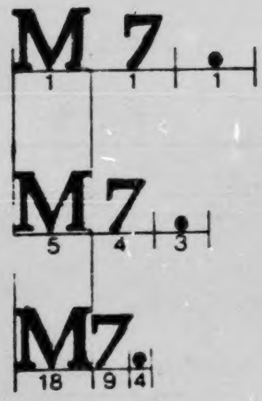
**The "Print Quality" appearance of Top Quality Typewritten Documents never appears as "professional" to the reader as typeset documents. No one would think of typewriting product brochures or the annual report!**

The Document **Will** Lack Effectiveness because of . . .

## LOWER READABILITY

caused by mono-spaced characters rather than typeset proportional typography.

## Mono-spaced & Proportional Type Characters



**Mono-spaced:** All characters are same width and have a relative value of 1.

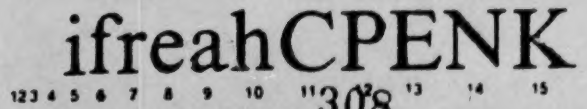
**Executive Proportional:** The widest character takes up the same space (value 5, instead of one) and the other proportionally smaller, relative to the value 5.

**Typeset Proportional:** The widest character takes up the same space (value 18, instead of one) and the others are proportionally smaller, relative to the value 18.

Note that the number of units is higher, but that the actual size of the unit gets smaller, with 5 units equal to one - Executive over typewriter and 18 units equal to one -typeset over typewriter.

## Typesetting "Fit"

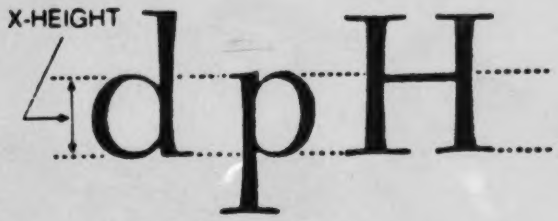
Typesetting offers finer increments of horizontal spacing, therefore, tighter **fit** of the letters, and less room required for the same words. The units are much smaller, with the same sized cap **M** having a value of 18 of these smaller units. The period has a value of four units, or 22% as wide, and the **e** and the **7** along with all other characters are in between, but differ in width from each other.



**Readability** of any printed material is a function of **legibility**, the ease and speed of character identification . . . and **Eye Movement** . . .

All reading and comprehension studies agree on this one thing — that rate of eye travel is a basic factor in speed of reading. Since the eye does not travel as far with typeset as with typewritten words, readability is improved. Studies also show that word comprehension is simplified by typographic **fit** of letters.

Legibility is directly related to size of character, particularly the character "body," not including ascenders or descenders.



This is called the x-height.

**The rate of eye travel is proportional to the width of words.**

10 Pitch Typewriter:

St. Louis, Gateway to the West, is on the Mississippi River.
(6" or 36 Picas)

11 Point Schoolbook:

St. Louis, Gateway to the West, is on the Mississippi River.
(4.35" or 26 picas)

**The typewritten line required 38% more eye travel! This is called the Y-factor.**

**With typographic fit through proportional spacing . . . you can maintain the x-height for legibility and reduce the Y-factor by 38%!**

## INCREASING DOCUMENT EFFECTIVENESS BY MORE THAN 38%!

**The overwhelming majority of multiple page, multiple copy documents contains vital information authored by key personnel.**

**What is the value to your organization of a 38% (or greater) increase in the effectiveness of such documents?**

46) What should be typeset?
47) Typesetting over typewriting

There are two classes of typesetting

A. **Aesthetic,** or traditional, typesetting

B. **Functional,** or state-of-the-art, typesetting

## Aesthetic Typesetting

Traditional "Book-quality" typography. Documents which were typeset **before** the "Interface" and in spite of cost . . . annual reports, brochures, legal & engineering documents, proposals, etc.

Money can be saved and turn-around time reduced for this class of document through the "captured keystroke".

## Functional Typesetting

State-of-the-art print-out using typographic character fit in order to obtain:

1) The Economics of Compaction
2) Greater Document Effectiveness

This impacts the 70% multiple page, multiple copy inplant production presently NOT being typeset!

**Functional Typesetting** is normally produced utilizing a phototypesetter.

But it does not have to be so — and will be changing as technology provides typographic fit with newer kinds of printers . . .

52) New tools
53) Improvement in typewriter
54) Typewriter printer
55,56,57) New technology by Sanders

## And the future holds promise of the availability of typographic fit through the intelligent copier

* * *

59,60) Intelligent copiers
61) Content and form

65) Producing typewritten output
66) On a magnetic medium
67) Input to a typesetting specialist
68) To produce typographic output

## SUMMARY

**ALL** multiple page multiple copy documents should be produced with typographic character fit.

The economics of the **captured keystroke** should be applied to **aesthetic typesetting.**

The economics of compaction combined with the principal of document effectiveness are compelling reasons to apply **functional typesetting** to your needs.

# PROJECT MANAGEMENT FOR SYSTEMS INTEGRATION

Linda O'Keeffe
Project Manager for Advanced Office Systems
Valley National Bank

*Level II*
*Wednesday Afternoon*
*June 25, 1980*

# PROJECT MANAGEMENT FOR SYSTEMS INTEGRATION

Why use a "project" approach to integrate systems?

- Existing systems will change as new elements are introduced

- Existing management structure is too concerned with day-to-day responsibilities

- Integration requires a concentrated effort to coordinate multi-level, diverse activities

- Project has visibility and its own identity

A project is a work commitment which has:

- Senior management objectives

- A one-time structure

- Political basis

Projects have:

- Start and end dates

- Assigned resources

- Limits on resources

- Non-routine tasks

- Life Cycle (Study, Design, Implement, Review)

The project environment is unique:

- Subject to pressures from external business conditions

- Linked to an unstable internal "client" with strong parochial interests

- Under constant pressure from technological change

# PROJECT MANAGEMENT FOR SYSTEMS INTEGRATION

Necessary "**interface**" groups for WP integration project

- Word Processing Operations
- Data Processing
    - Operations
    - Systems & Programming
    - Technical Systems
    - Planning & Control
    - Advanced Systems
- Data Administration
- Telecommunications
- Methods Group
- Operations Publications
- Security
- Audit
- Purchasing
- Contracts

Project Management Keys

- Build plans and estimates
- Secure "client" involvement
- Monitor performance
- Identify problems and institute management action
- Make effective use of standards and procedures
- Develop and maintain responsive organization structure
- Maintain adequate technical capabilities
- Define project boundaries
- Develop adequate work specifications and schedules

The key to Project Management;

Plan the work -- Work the plan

Project Leadership

- Unstructured environment
- Leader defines the position
- Temporary position -- success is tied to accomplishing the objective
- Minimal (or non-existent) top level support
- Personal interactions are critical

## MANAGEMENT CYCLE OF SYSTEMS PROJECTS

### Different Project Phases Require Different Management Styles

| PROJECT PHASE | TYPE WORK | PRODUCT OUTPUT | TIME PRESSURE | RISK | EFFORT | MANAGEMENT STYLE |
|---|---|---|---|---|---|---|
| Fact-Finding | Research | Report | Minimal | Low | Group | Loose Guidance |
| Design | Formulation | Specifications | Flexible | Moderate | Teams | Coordination |
| Development | Construction | Programs | Tight | High | Individual Assignments | Direction And Follow-up |
| Integration Testing | Proving/ Fixing | Working Entity | Frenzied | Critical | Teams | Performance Pacing |
| Installation | Delivery/ Exposure | Usable Entity | Panic | Moderate | Group | Exposure Marketing |

## PROJECT MANAGEMENT FOR SYSTEMS INTEGRATION

Project Planning Tools:

- Task Lists
- Gantt (Bar) Chart
- Network Diagrams
    CPM (Critical Path Method)
    PERT (Program Evaluation & Review Technique)

PERT: Emphasizes Accomplishments

CPM: Emphasizes the work activity

PERT/CPM

- Logic diagrams
- Graphic expressions of planned activities and events arranged in sequence
- Evidence of creative management planning

Value of PERT/CPM as a Planning Technique

- Shows interrelationship of events, activities and time

- Dynamic -- can be updated and changed

- Effective communication vehicle

- Recording discipline -- ensures that program has been thought out

- Allows for projecting when there is a high degree of uncertainty

Planning Steps:

1. Decide what you want to achieve; a target or objective (a noun!)

2. List items needed to achieve success

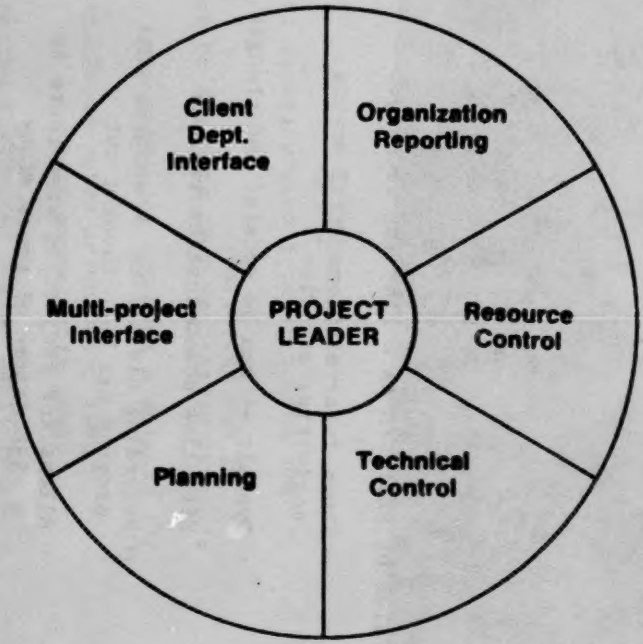
    Start with random list
    Rank items under major categories

3. Develop a sequence for the items

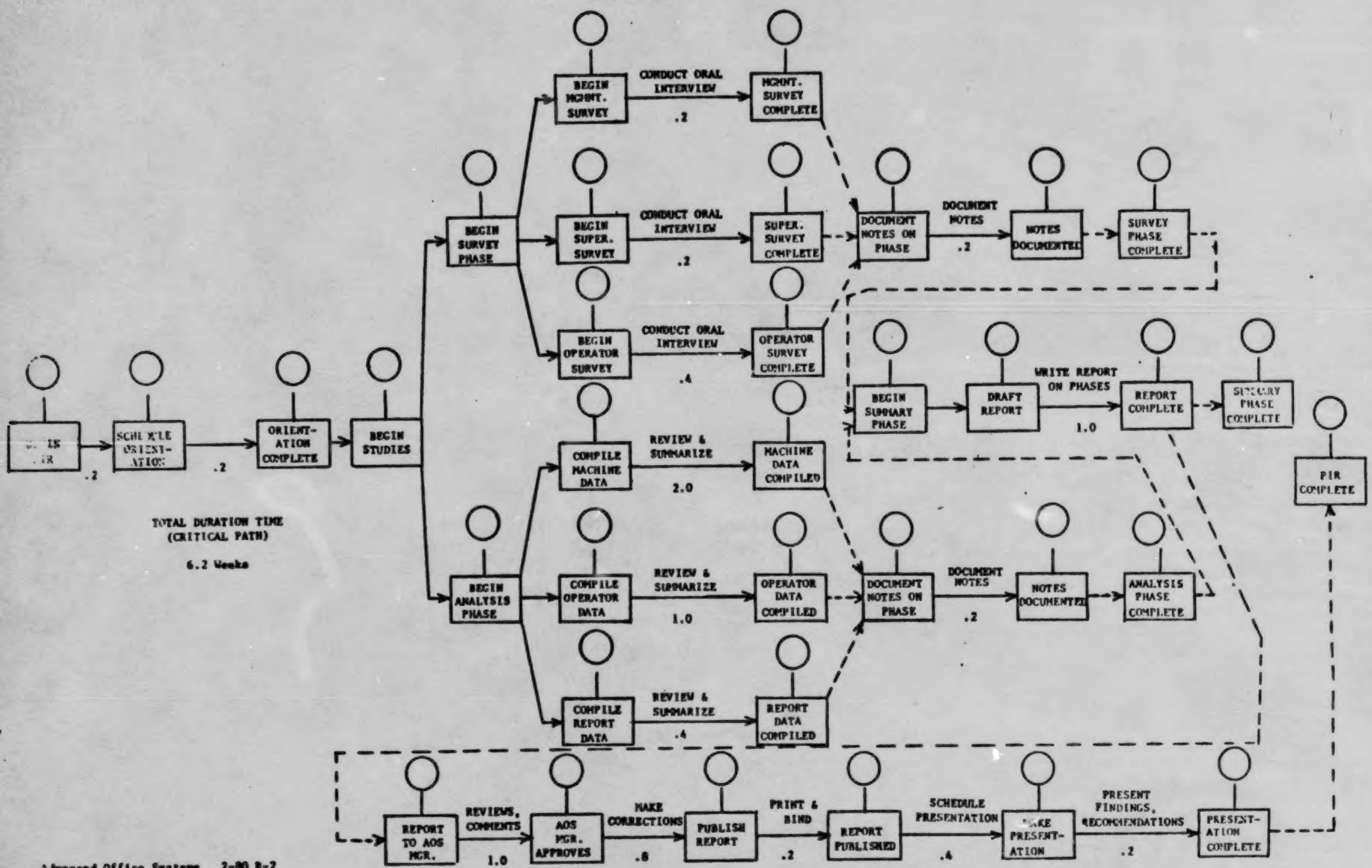
4. What activities lead directly to achievement of the objective?

5. How much time will each activity take?

**Project Leader's Domain**

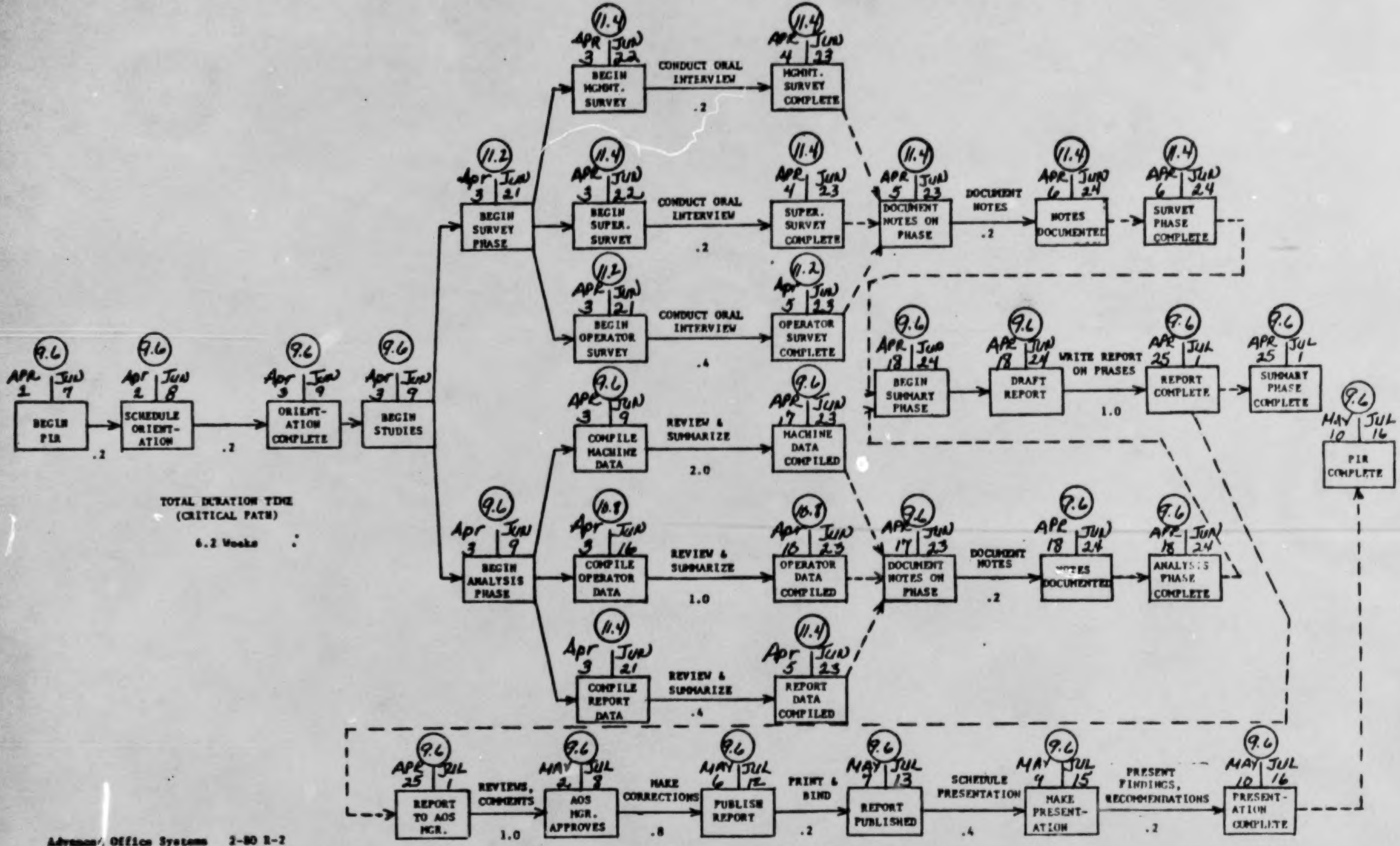

Client Dept. Interface
Organization Reporting
Multi-project Interface
PROJECT LEADER
Resource Control
Planning
Technical Control

POST IMPLEMENTATION REVIEW


SCHEDULE ORIENTATION
.2
.2
ORIENTATION COMPLETE
BEGIN STUDIES
BEGIN SURVEY PHASE
BEGIN MGMNT. SURVEY
CONDUCT ORAL INTERVIEW
.2
MGMNT. SURVEY COMPLETE
BEGIN SUPER. SURVEY
CONDUCT ORAL INTERVIEW
.2
SUPER. SURVEY COMPLETE
BEGIN OPERATOR SURVEY
CONDUCT ORAL INTERVIEW
.4
OPERATOR SURVEY COMPLETE
DOCUMENT NOTES ON PHASE
DOCUMENT NOTES
.2
NOTES DOCUMENTED
SURVEY PHASE COMPLETE
BEGIN SUMMARY PHASE
DRAFT REPORT
WRITE REPORT ON PHASES
1.0
REPORT COMPLETE
SUMMARY PHASE COMPLETE
PIR COMPLETE
BEGIN ANALYSIS PHASE
COMPILE MACHINE DATA
REVIEW & SUMMARIZE
2.0
MACHINE DATA COMPILED
COMPILE OPERATOR DATA
REVIEW & SUMMARIZE
1.0
OPERATOR DATA COMPILED
COMPILE REPORT DATA
REVIEW & SUMMARIZE
.4
REPORT DATA COMPILED
DOCUMENT NOTES ON PHASE
DOCUMENT NOTES
.2
NOTES DOCUMENTED
ANALYSIS PHASE COMPLETE
REPORT TO AOS MGR.
REVIEWS, COMMENTS
1.0
AOS MGR. APPROVES
MAKE CORRECTIONS
.8
PUBLISH REPORT
PRINT & BIND
.2
REPORT PUBLISHED
SCHEDULE PRESENTATION
.4
MAKE PRESENTATION
PRESENT FINDINGS, RECOMMENDATIONS
.2
PRESENTATION COMPLETE
TOTAL DURATION TIME (CRITICAL PATH)
6.2 Weeks

## TEXT PROCESSING

### POST IMPLEMENTATION REVIEW


9.6 APR 2 JUN 7 BEGIN PIR
.2
9.6 Apr 2 JUN 8 SCHEDULE ORIENT-ATION
.2
9.6 Apr 3 JUN 9 ORIENT-ATION COMPLETE
9.6 Apr 3 JUN 9 BEGIN STUDIES
11.2 Apr 3 JUN 21 BEGIN SURVEY PHASE
11.4 APR 3 JUN 22 BEGIN MGMNT. SURVEY
CONDUCT ORAL INTERVIEW .2
11.4 APR 4 JUN 23 MGMNT. SURVEY COMPLETE
11.4 APR 3 JUN 22 BEGIN SUPER. SURVEY
CONDUCT ORAL INTERVIEW .2
11.4 APR 4 JUN 23 SUPER. SURVEY COMPLETE
11.2 APR 3 JUN 21 BEGIN OPERATOR SURVEY
CONDUCT ORAL INTERVIEW .4
11.2 Apr 5 JUN 23 OPERATOR SURVEY COMPLETE
11.4 APR 5 JUN 23 DOCUMENT NOTES ON PHASE
DOCUMENT NOTES .2
11.4 APR 6 JUN 24 NOTES DOCUMENTED
11.4 APR 6 JUN 24 SURVEY PHASE COMPLETE
9.6 APR 18 JUN 24 BEGIN SUMMARY PHASE
9.6 APR 18 JUN 24 DRAFT REPORT
WRITE REPORT ON PHASES 1.0
9.6 APR 25 JUL 1 REPORT COMPLETE
9.6 APR 25 JUL 1 SUMMARY PHASE COMPLETE
9.6 MAY 10 JUL 16 PIR COMPLETE
9.6 APR 3 JUN 9 COMPILE MACHINE DATA
REVIEW & SUMMARIZE 2.0
9.6 APR 17 JUN 23 MACHINE DATA COMPILED
9.6 Apr 3 JUN 9 BEGIN ANALYSIS PHASE
10.8 Apr 3 JUN 16 COMPILE OPERATOR DATA
REVIEW & SUMMARIZE 1.0
10.8 Apr 16 JUN 23 OPERATOR DATA COMPILED
9.6 APR 17 JUN 23 DOCUMENT NOTES ON PHASE
DOCUMENT NOTES .2
9.6 APR 18 JUN 24 NOTES DOCUMENTED
9.6 APR 18 JUN 24 ANALYSIS PHASE COMPLETE
11.4 Apr 3 JUN 21 COMPILE REPORT DATA
REVIEW & SUMMARIZE .4
11.4 Apr 5 JUN 23 REPORT DATA COMPILED
9.6 APR 25 JUL 1 REPORT TO AOS MGR.
REVIEWS, COMMENTS 1.0
9.6 MAY 2 JUL 8 AOS MGR. APPROVES
MAKE CORRECTIONS .8
9.6 MAY 6 JUL 12 PUBLISH REPORT
PRINT & BIND .2
9.6 MAY 7 JUL 13 REPORT PUBLISHED
SCHEDULE PRESENTATION .4
9.6 MAY 9 JUL 15 MAKE PRESENT-ATION
PRESENT FINDINGS, RECOMMENDATIONS .2
9.6 MAY 10 JUL 16 PRESENT-ATION COMPLETE

TOTAL DURATION TIME
(CRITICAL PATH)

6.2 Weeks

## EVOLUTION OF OFFICE AUTOMATION

| | Stage 1<br>Initiation | Stage 2<br>Expansion | Stage 3<br>Consolidation | Stage 4<br>Maturity |
|---|---|---|---|---|
| **PEOPLE** | Tinkerers: begin to perceive technological opportunities for improving work | Technicians: have mastered tools for mechanizing tasks | Experts: know what to do | Executive implementor: conceptual thinker who is sales oriented |
| **APPLICATIONS** | Mechanization of repetitive tasks; emphasis on volume | Additional mechanization: dictation equipment, ability to handle revision of long documents | Shift to automating processes and functions; considers overall dimensions of work creation, handling, distribution. | Organization expects integrated functions for thorough information handling capability. |
| **EQUIPMENT** | Standalone word processing systems using magnetic card or cassette; no visual display | Central dictation, standalone word processing systems using floppy disk, visual display, editing features | Peripheral devices added to word processing systems (OCR, variety of printers, photo-composition);sophisticated file maintenance techniques | Communications ability added to word processing systems for access to computers and other remote devices for input and output |
| **EMPHASIS** | Increase secretarial and clerical productivity; reduce operating costs | Improve management support; reduce operating costs | Systems approach considers work flow that includes both manager and support staff; improve service level and flexibility | Continued integration of function and facilities; more process than product oriented; Management is primary "user" |
| **LOCATION** | Word Processing Center with professional supervision | Highly skilled Word Processing Center with experienced supervision | Expanded responsibilities for Word Processing Center with satellite centers for special applications | Widely disbursed sites; central location for backup, high volume and special projects |
| **MANAGEMENT ATTITUDE** | Hands off; little support or interest | Curious; begins to participate but depends on technical resources; better support for concept | Capable of participating knowledgeably; will "sponsor" development | Full involvement and sponsorship |
| **ORGANIZATION ATTITUDE** | No first-hand knowledge; a toy | Used to tools; realizes some benefits but has no insight regarding implications | Sophisticated in using tools; understands implications of using tools | Systems used for real business purposes; integral part of management process |

ADS 12/79

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# MANAGEMENT EFFECTIVENESS AND TECHNOLOGY IN THE FUTURE

James Carlisle, Ph.D.
President
Office of the Future, Inc.

*Level II*
*Wednesday Afternoon*
*June 25, 1980*

# MANAGEMENT EFFECTIVENESS AND TECHNOLOGY IN THE FUTURE

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Guttenberg, NJ 07093

## I. Introduction

We are still in the early stages of a revolution in communication technology, so dramatic and pervasive that it may change the very nature of management as we know it today. In the office of the future, not only will we do things differently, but we will do new and different things. Not only will processes occur faster, but entirely new processes will become both possible and essential to the daily functioning of individuals and organizations. The technologies of office automation will have a revolutionary impact on the principles of "Management Communication and Control," which today, we have already begun to measure.

Think for a moment what it would be like without a telephone, a typewriter, a photocopier and a universal mail delivery system. Most of us take these and other modern conveniences for granted. Yet, without them, most corporations and many government and service organizations would probably not exist as we know them today. In the office of the future, new communications and computer technologies, which today seem extravagant and perhaps better suited to Battlestar Galactica or Starship Enterprise, will be commonplace to us all.

Communications technologies and innovative techniques play a fundamental role in the structure of management. Yet, in comparison to other technologies, they have received little attention in management curricula and literature. Management Science has little to say about how the physical limitations of communication restrict the complexity of management tasks that an organization can accomplish. Instead, it has focused more on decision and information requirements of managers than on the communication processes by which information is obtained and through which decisions are translated into actions to achieve results.

Dozens of major organizations in the United States and Europe are experimenting with office automation in various forms. Over 50 U.S. firms are currently using store-and-forward computer correspondence systems, and there are hundreds of thousands of word processor terminals in use daily. A few pioneering firms have invested in development of new office technology applications, such as correspondence management, formletters, mailing list utilities, teleconferencing, electronic bulletin boards, status tracking for key projects, automatic spelling correction, document/message indexing, and interfacing of digital text. Other firms who are currently investigating advanced pilot project systems are acting as catalysts, driving vendors to accelerate their strategic and technical planning.

Despite the visibility and glamour of the new technology, the real revolution is occuring in the way managers gain increased control over their jobs. The convergence of computer and communication technologies and the apparent management acceptance of office automation applications are paving the way for new forms of communication among managers. The bottom line for these innovations will be, not clerical processing, but improved Management Communication and Control (MC&C).

In this paper, the authors would like to give their working definition of "Management Communication and Control," including the real impact derived from proper use of office automation.

## II. Management Communication & Control Defined

In order to fully understand and appreciate the perspective of Management Communication and Control, we must have a careful definition of terms.

> "Management" can be defined as the process of obtaining desired results through effective utilization of the resources available to the organizations. The resources of concern to managers include the "6 M's": Money, Material, Machinery, Methods, Manpower and Management Information.
>
> "Communications" can be defined as the transfer of information in order to achieve an intended result. Note in this definition, the importance of the word "intended." Communication is ineffective or incomplete when it does not achieve the intended result.
>
> "Control" can be defined as ensuring that what has been planned is actually accomplished.

So where does office automation fit in? In our rapidly changing business, social and economic environments, the traditional means of management communication and control simply cannot keep up the pace. Office automation is the tool by which the managers can exercise their communication and control functions in the most efficient and effective means.

> "Office Automation" is the integration of computer and communications technologies with new management policies to reduce unnecessary effort, awareness, calculation, and judgement of office workers in their performance of repetitive processes necessary to the success of the organization. (4)

Last year, the authors had the opportunity to lead an office automation project team for a European multinational corporation through the detailed analysis of managerial work patterns. Interviewing 34 senior managers and experts in 3 departments and conducting some 10 days of observations on their secretaries, the team came to the following conclusions:

- Desire and expectations on the part of management to find ways of improving their effectiveness were high.
- Interest in the prospects of office automation seemed to be high, although the awareness of technological options was low.
- There were 21 application areas identified in which office automation was expected to make a significant and cost-effective contribution to managers and professionals.

Three application areas were selected as a "portfolio of pilot projects."

- Communications for the executive committee secretariat
- Scheduling of internal activities
- Analysis of structural resources for production planning

Each of these parallel pilot projects addresses a critical bottleneck for information flow within the company.

In another feasibility study for a U. S. government organization, our interviews uncovered seven problem areas in which administrative information processing was limiting management control and effectiveness. For example, task and project coordination required the following:

- Retrieval of information -- a costly, time-consuming, and sometimes unsuccessful process.
- Getting opinions -- resolving differences and gaining concensus on major issues in an office where everyone was always busy.
- Keeping track of deadlines for completed work which had to pass through many stages in a short period of time.

This organization has developed an approach to both long and short-range planning. They are now selecting a multi-function office automation system for pilot testing with administrative managers. One purpose of the pilot test will be to evaluate the impacts of computer correspondence and correspondence tracking systems on the executive.

Based on these, and three other recent organizational analyses, we can begin to draw some generalizations about MC&C:

- MC&C are the functions on which managers spend most of their time.
- MC&C functions offer significant potential for improving managers' efficiency and effectiveness.
- MC&C offers a significant potential for cost savings.
- MC&C systems, if improved by more efficient and timely communication techniques and technologies, can support an increasingly broader span of control.
- MC&C is highly automated in the plant, but primitive in the office.
- MC&C is highly dependent on human factors.
- MC&C is largely a matter of personal style.
- The most valuable resource for most managers is their own time.

## III. Impacts of Office Automation on MC&C

Only one organization with which we are familiar has been interested in studying the impacts of office automation on people. In 1976, the U.S. Army Development and Readiness Command (DARCOM) funded this author to study the impacts of computer message systems on their managers. At that time approximately 60 members of DARCOM used their computer message systems daily. Today, over 300 users are on-line daily, from 80 locations. Results of this study and reflections by the top managers involved in the project have been reported (3, 5, 8) and made available to the public.

One of the most significant results was that the DARCOM executives were freed from the time and physical constraints of their traditional offices. They now use portable printing terminals almost exclusively. These terminals weigh only 7.1 kilograms and are easily available for use at home and on trips, as well as at their desks. There are many advantages to the "portable work station" besides the obvious one of flexibility. Executives can efficiently make use of time which was previously wasted (e.g., traveling time) thereby relieving pressure when they return to their offices. Executives also find that they can more effectively deal with a "touchy" request at a time, away from the office, where they can carefully reflect on the issues and compose a return message.

Message systems "speed up the metabolism of the organization," a result that some people appreciated and others resisted. Computer message systems provide a means for prompt and accurate communication. They do not, however, guarantee that either of these conditions will occur. Herein lies the responsibility of the user. Some people don't answer their computer mail, in the same way that they let phone messages accumulate. Others, who are more responsible and committed, are amazingly prompt. It is not uncommon for a manager to send out requests on the ARPANET or TELENET at midnight, and receive responses within an hour from one or two other managers in his group.

People seem to appreciate the greater "connectivity," (a term used by Einar Stefferud (7) one of the most experienced of computer message system researchers.) People who are not in the same office or who are traveling, are better able to stay in touch and can communicate less superficially than other media permit.

The most critical factor determining the success of a decision making process is accurate and sufficient (input) data. Since executives, with severe time constraints must rely heavily on reliable, complete and timely data to effectively perform their jobs. The informative function of computer message systems can be invaluable to these executives in both the expedient translation of this data and the resulting smoother decision making process. The results are not only more efficient and effective use of the executive's time and energy, but the bottom line means dollar savings to the organization.

The use of computer message systems has led to greater corporate-wide awareness of the status of projects and issues, improved project coordination, better collective problem solving, the ability to keep people informed on projects regardless of when they join them, a significant cut in the turn-around time for decision making (from weeks to days), and improved utilization of travel time.

At Citibank, one of the principal justifications for the development of a manager workstation for widespread use throughout the bank has been the promise of increasing the span of control. They estimated savings from this alone of over $30. million. (June 1977 dollars.)

## IV. Case Study: An Operating "Office of the Future" System

Not only have we been involved in research and design of office automation systems since 1973, but we also use our own version of an "Office of the Future," on a daily basis.

OFI, while not a physically large corporation is one of the few companies in the world in which daily business and administration are carried out almost exclusively through the use of office automation tools. Becuase a written memo arriving several days to several weeks after its original issue would be virtually useless, there are essentially no written memos at OFI. Instead, any member of an OFI project team can communicate via electronic mail to immediately issue directives, announcements, requests for information, or meeting schedules.

A truly distributed company, Office of the Future, Inc. has its main office in the New York City Metropolitan area, with a European office in Brussels. Clients are located throughout the United States and Europe, yet we access and share centralized resources through the TELENET Computer Network. With consultants and principals for any given project located in different states or countries, precise and timely communication, both with OFI headquarters and with each other, is of the utmost importance. With these constraints, plus the time zone and distance factors, electronic communication is the only solution.

Especially important to our firm is that regular progress reports can be written by project team leaders from material collected via a "conferencing" or "journal" program kept by the participants. These reports serve not only as daily references, but also as a permanent record of OFI's development over the life of many projects. Through the use of these simple office automation tools, everyone at OFI is able to stay informed and participate on projects — even people who are traveling or located outside of our main offices.

Since 1973, our company has grown significantly through our involvement with and use of these office automation tools and networks. With terminals both in our offices and in our homes, our capital investment and operating costs are still far below those of other companies using mag card typewriters.

Because of the efficiency of this system of management communication and control, administrative overhead at OFI is also kept at a minimum. With everything on a central system, OFI uses only one administrator to coordinate the progress of all projects. With the use of portable terminals, the administrator can contact any member of the project team at any time or location to confirm information or answer questions.

Another benefit arising from the portable terminal is that OFI's support personnel (such as typists) need not work in the office itself. Several of our secretaries regularly work for us from their homes, typing into portable terminals from dictation or draft copy. This allows them to work when they want, with minimal distractions. It also saves us expense by using lower evening phone and computer rates and decreasing our required office space.

The reason for introducing office automation and the benefits derived from it are not all internal. The complexity of our environment and of our organizations is increasing at a much faster rate than improvements in our traditional organizational management techniques. Something must be done to put the office of the future in step with our changing environment. While office automation seems to be the direction to take, the following aspects of office automation must be kept in mind.

- Technology, by itself, is not the solution.
- New techniques, new methods, new forms of doing "paperwork" must be developed.
- These changes should be guided and initiated by those in the office, not by vendors or technology designers.

- There is not an excess of qualified office labor, but a growing shortage.
- Office Automation may allow more people to contribute economically to the increasing demands of management in the "Information Society."

## V. A Two-Stage Impact Theory

With due modesty, we would like to propose a two-stage theory on how the impacts of office automation will be felt. We predict that MC&C will change in response to the new technologies, rather than in response to needs perceived by a majority of management. Furthermore, it will take a combined change in technology and management control systems to produce dramatic improvements in productivity. This relationship between technology, MC&C and productivity is shown in Figure 1.

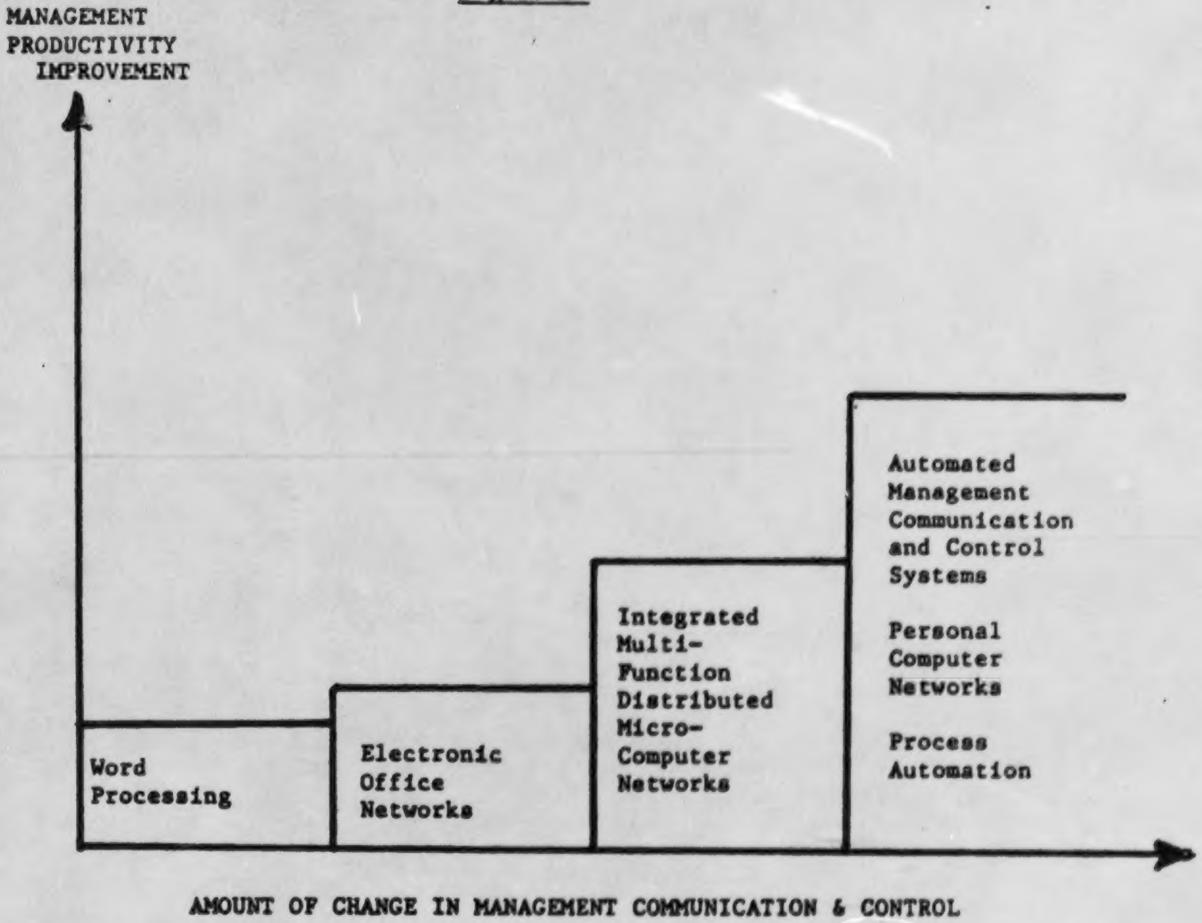
## VI. Critical Factors for Success in Introducing Office Automation

The most important factor in successful development of use of office automation is having clear objectives. Time and again, project teams tour the U.S. research and development labs, attend seminars, and even attempt to select pilot project systems without first clearly defining their objectives! The most common answer to the question,"Why are you doing this?" is, "To find out what the impact of office automation will be on my firm." It is necessary to be more specific as to what one hopes to learn in a pilot test. It means little to find out that an unreliable, poorly designed, over ambitious "advanced" system is not "cost-effective" in some arbitrarily chosen application. Similarly, using data processing managers as the subjects in an experiment to anticipate the reactions of non-DP executives to electronic mail is likely to yield less than a full return on the investment. Whatever the objectives (learning, cost analysis, human factor analysis, opportunity creation, cost reduction, etc.) it should be explicitely stated and agreed upon by all involved.

The second critical factor is involvement of three groups as outlined below:

1. A top management review board should be established for planning and control of office automation as a whole and for coordination of separate projects.
2. A project team should be composed of representatives from potential user groups, systems analysts and organizational analysts, with a strong team leader.

Figure 1.


MANAGEMENT PRODUCTIVITY IMPROVEMENT
Word Processing
Electronic Office Networks
Integrated Multi-Function Distributed Micro-Computer Networks
Automated Management Communication and Control Systems
Personal Computer Networks
Process Automation
AMOUNT OF CHANGE IN MANAGEMENT COMMUNICATION & CONTROL

3. An administrative task force should be concerned with organization-wide analysis of the economic, social and administrative benefits and costs of office automation.

This three-level planning approach must include some checks and balances to minimize the "empire building" and "tunnel vision" which often occur in data processing and other capital spending projects. The management review board and administrative task force should not restrict autonomy of departments or project teams to select and develop new applications which they determine to be relevant for their group. Rather, it should advise these groups of the long-range implications of equipment acquisition, provide them with guidelines for equipment comparison and cost-justification and help them develop communication protocols to ensure compatability with appropriate networks.

The third critical factor is clear functional and behavioral planning before any technological design or selection occurs. Again, the temptation is to listen to the vendors or the press and decide that someone else's solution will work for you. This author recently reviewed an 84 page specification for an integrated electronic office system. This request for proposal reflected a careful analysis of user needs for that government office and demonstrated to vendors that the clients knew what they wanted.

The fourth critical factor is the realization by all involved that there will be a "learning curve" and that systems should be continually improved in response to user experience and needs. The above-mentioned systems specification called for 20 man years of programming and user assistance after installation of the new office system as part of the original bid. As no one can offer the ultimate system either now, or in the forseeable future, change and growth are inevitable and must be planned for.

The fifth critical factor is the total understanding and commitment of all participants in the pilot or operational test at the earliest stages of the project. Human aspects of behavior are particularly important at this stage. For instance, if managers or clerical personnel think that they are likely to be replaced by an effective system, they are very unlikely to contribute to its success. There is need for a great deal of well-designed user training from the start of the project.

The sixth critical factor is progressional training and user support, once the system is implemented. A rule of thumb is to spend 25% of the system cost on training for the pilot project. It has become common recently to conduct extensive testing of the functional definition of the system and even the user dialogue before the system is programmed or selected. "Learn before you buy" are four words to the wise.

The seventh critical factor for the successful introduction of office automation is a flexibile, powerful, reliable system. Flexibility ensures adaptability to user habits and preferences. Power ensures extensibility to accomodate the applications that you wish you had specified at the outset. Reliability is essential for user confidence and for effective testing. With a flexible, powerful system, it may be judicious to introduce only a subset of the system capabilities, directed to the primary communication and control needs of a new user group.

The bottom line and eighth critical factor is that the system or project genuinely serves a significant need of the user group. If the value of the service offered is marginal, so may be their commitment. It is always best if a project addresses critical resource problems experienced by an entire group of users.

While each of these eight critical factors are significant unto themselves, they are all interrelated in ensuring the success of a newly introduced office automation project. A project which has clearly defined objectives that are aligned with a genuine and significant need of the entire user group has an improved chance for success.

## VII. Need for Better Human Engineering

The computer is a machine which, in theory, can be made to look and act very much like a human being. When managers begin to expect, even demand, that the computer interact like an "intelligent person", rather than like an autistic moron, we will find that it can be a valuable aid to our daily activities. Managers and clerical staff are rational and justified in refusing to use computers which require magical incantations, complex procedures and frequent assistance from specialists to accomplish even the most rudimentary of office tasks.

Human engineering is not only possible, it is straightforward. But it takes time, patience, cleverness and money to accomplish. Intelligent users can specify what the interaction language ought to look like for any system which they plan to use on a regular basis. (6, 1 & 2 have demonstrated the value of involving users in early stages of design.) The tools exist. It requires only designers with open minds and the skills to implement those tools.

We found that a good computer message system allows people to be very personal, very candid and very precise, much as they are on the telephone or in writing personal letters by hand. Dictation and the "business letter" have taken much of the personality out of management.

Our personal experience from working in four different organizations where computer correspondence was widely used is that it is enjoyable, liberating, economical, precise, dependable, and adds a new dimension to interpersonal business communication. And you don't ever have to call back or get "put on hold."

Good office systems with well-designed, well-engineered user interfaces do exist today. Managers and office staff have settled for too little human engineering for too long. Our concern is that managers and designers in the office of the future may ask for too little, and get it.

## VIII. Conclusion

The office of the future is much more than the convergence of computer and communication technologies. It is a new approach to Management Communication & Control.

The process of introducing new office technologies will bring to light inefficiencies and inconsistencies in the existing management structures and procedures. These will be addressed gradually and will eventually lead to substantial improvement in the overall structure and functioning of the office. Organizations will streamline themselves to better handle not only the increasing amounts of paperwork, regulation and communication, but to deal with change itself.

Alliances between staff and line groups will be forced to plan for, design, implement, supervise, and subsidize new office automation systems. MC&C will be impacted by new forms of motivation, supervision, communication, reporting, accounting, negotiating, project coordination and compensation.

Management in the office of the future will increasingly become the management of change. However, the resistance to change may prove as great as the new opportunities. Computer systems will provide necessary tools for monitoring the relevant aspects of the changing reality in which managers exist. Those organizations and individuals who master the new tools and techniques of MC&C will most likely prevail.

Whether a corporation succeeds or fails is not a direct result of the level of telephone expenses or the efficiency of its typists and clerks. Success of a company is determined largely by the quality of the relationship its managers have with reality. If managers are out of touch with the environment in which they are operating, they may soon be out of work. MC&C systems are a manager's relationship with reality.

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# ASSESSING WP AND AUTOMATED OFFICE TECHNOLOGY: A CASE STUDY

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*Level II*
*Wednesday Afternoon*
*June 25, 1980*

## PRESENTATION OUTLINE

- ASSESSMENT PROJECT
    - CASE STUDY
    - SIX STAGES OF OFFICE AUTOMATION GROWTH
- STRATEGY SELECTION -- OFFICE AUTOMATION
    - CASE STUDY

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# ADVANCED OFFICE SYSTEMS ASSESSMENT PROCESS

## "A SUCCESSFUL BEGINNING"

A COMPANY ASSESSES ADVANCED OFFICE SYSTEMS, IDENTIFIES THEIR CURRENT STATE, PROVIDES CONCLUSIONS, AND MAKES RECOMMENDATIONS TO TOP MANAGEMENT.

## ADVANCED OFFICE SYSTEMS ASSESSMENT PROCESS

- OBJECTIVE
  - TECHNOLOGICAL EVALUATION OF THE COMPONENTS OF THE OFFICE OF THE FUTURE
  - TO RECOMMEND A COURSE OF ACTION FOR THE CORPORATION FOR IMPLEMENTATION OF COMPONENTS WHICH OFFER SIGNIFICANT LONG TERM BENEFITS
- PROJECT TEAM
  - MIS DEPT. - MGR. OF PLANNING & COORDINATION 347
    MGR. OF APPLICATIONS & DEVELOPMENT
  - ADMINISTRATION - MGR. OF WORD PROCESSING
  - TELECOMMUNICATIONS - MGR. OF COMMUNICATIONS & CONTROLS
  - RECORDS MANAGEMENT - MGR. OF CORPORATE RECORDS PROGRAM
  - HUMAN RESOURCES - PERSONNEL MGR.
  - RESEARCH DIVISION - DIRECTOR OF RESEARCH
- RESPONSIBLE TO - VICE PRESIDENT OF DATA PROCESSING
- REPORT PRESENTED TO - MANAGEMENT REVIEW COMMITTEE

FOCUS ON FOLLOWING AOS COMPONENTS:

## INFORMATION GENERATION

- MULTI-FUNCTION WORK STATIONS
- WORD PROCESSING (FOCUS ON INTERFACE WITH COMPONENTS)
- OPTICAL CHARACTER RECOGNITION (OCR)

## INFORMATION DISTRIBUTION

- STORE AND FORWARD COMMUNICATIONS
- COMPUTER BASED MESSAGE SYSTEMS
- FACSIMILE TRANSMISSION
- PHOTO COMPOSITION
- INTEGRATED COMMUNICATIONS (WORD/DATA/GRAPHICS/VOICE/IMAGE)
- TELECONFERENCING
- INTELLIGENT COPIERS

## INFORMATION STORAGE AND RETRIEVAL

- MICROGRAPHICS
- ELECTRONIC FILES
- DATA BASE INQUIRY

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## REPORT OUTLINE

I. EXECUTIVE SUMMARY

II. WHAT ARE ADVANCED OFFICE SYSTEMS?

III. PHASE I DESCRIPTION OF AOS STUDY

IV. STATUS OF ADVANCED OFFICE SYSTEMS TECHNOLOGY

V. AOS COMPONENTS HAVING EARLY PROMISE

VI. WHAT OTHER FIRMS ARE DOING IN AOS

VII. GENERAL CONCLUSIONS

VIII. RECOMMENDATIONS

## APPENDIX

### ADVANCED OFFICE SYSTEMS COMPONENT DESCRIPTIONS

WORD PROCESSING
OPTICAL CHARACTER RECOGNITION
MULTIFUNCTION WORK STATION
STORE AND FORWARD COMMUNICATIONS
COMPUTER MESSAGE SYSTEMS
FACSIMILE TRANSMISSION
* COMPUTER BRANCH EXCHANGE
PHOTOCOMPOSITION
* INTEGRATED COMMUNICATIONS
TELECONFERENCING
INTELLIGENT COPIERS
MICROGRAPHICS
ELECTRONIC FILES

## APPENDIX OUTLINE

### AOS COMPONENT

1. WHAT IS IT?
2. HOW DOES IT RELATE TO OTHER COMPONENTS?
3. WHAT DOES IT COST?
4. HOW DO WE USE IT TODAY?
5. HOW ARE OTHERS USING IT?
6. WHAT WILL IT LOOK LIKE IN THE FUTURE?

## III. DESCRIPTION OF PHASE I OF AOS STUDY

- OBJECTIVES STATED
- APPROACH: REVIEW OF AVAILABLE ARTICLES/LITERATURE
  ATTENDANCE AT MEETINGS/SEMINARS
  VENDOR DISCUSSIONS
  VISITS TO OTHER CORPORATIONS
  PLANNING TEAM REVIEWS/REPORT DRAFT
  CONSULTING FIRM REVIEW
  REPORT FINALIZATION

## IV. STATUS OF ADVANCED OFFICE SYSTEMS TECHNOLOGY

AOS: WILL BE INTEGRATED SET OF MACHINES, PROCEDURES, AND COMMUNICATIONS FACILITIES FOR HANDLING BUSINESS DOCUMENTS, DATA, AND PERSON-TO-PERSON COMMUNICATIONS

AOS IMPLEMENTATION:

LIKELY INVOLVE INSTALLATION OF DISCRETE COMPONENTS AT SEPARATE TIMES WITH INTEGRATION AS THE EVENTUAL GOAL

COMPONENTS DESCRIBED:

INFORMATION GENERATION - GROUP OF COMPONENTS USED TO CREATE NEW INFORMATION

- WORD PROCESSING
- OCR
- SPEECH RECOGNITION
- MULTI-FUNCTION WORK STATION

INFORMATION DISTRIBUTION - CATEGORY WHICH ENABLES INFORMATION TO BE SENT FROM ORIGINATOR TO ONE OR MORE RECIPIENTS

- STORE AND FORWARD COMMUNICATIONS (SFC)
- INTEGRATED COMMUNICATIONS
- COMPUTER BASED MESSAGE SYSTEMS (CBMS)
- FACSIMILE TRANSMISSION (FAX)
- INTELLIGENT COPIERS
- PHOTOCOMPOSITION
- TELECONFERENCING

INFORMATION STORAGE AND RETRIEVAL - METHODS USED TO RETAIN AND RETRIEVE INFORMATION - EXPECTED TO REPLACE CURRENT MAJOR STORAGE MEDIA - PAPER

- MICROGRAPHICS
- ELECTRONIC FILES
- DATA BASE INQUIRY

## V. AOS COMPONENTS HAVING EARLY PROMISE

- WORD PROCESSING:
  - DOMINANT AOS COMPONENT DURING NEXT 5 YEARS
  - WORK STATION CONCEPT WILL ENABLE MOST TYPING TO USE WP FACILITIES
  - ONLY HOME OFFICE HAS ORGANIZED APPROACH

- PHOTOCOMPOSITION:
  - INSTALLED IN PRINT SHOP AND TIED TO WP EQUIPMENT

- OCR:
  - ONLY DURING NEXT FEW YEARS COULD PROVE BENEFICIAL - TO BE REPLACED BY LOW COST WORK STATIONS TIED TO CENTRAL WP SYSTEM

- COMMUNICATING WORD PROCESSORS:
  - MAY BE USED FOR COMPUTER BASED MESSAGE SYSTEMS
  - COMPATIBILITY A MAJOR CONCERN

- INTELLIGENT COPIERS:
  - DEVICES WILL CUT COST OF LABOR INTENSIVE TWO STEP PROCESS OF ORIGINALS TO COPIES

- MICROGRAPHICS:
  - MICROGRAPHIC FILES, WITH COMPUTERS FOR INDEXING, CAN BE SEARCHED MORE EASILY THAN PAPER FILES - SUITABLE FOR STORAGE OF ACTIVE DOCUMENTS REQUIRING FREQUENT RETRIEVAL

- COMPUTER BASED MESSAGE SYSTEMS:
  - WILL FILL MAJOR COMMUNICATIONS NEEDS FOR CERTAIN GROUPS OF PEOPLE. SERVICE BUREAUS MAY OFFER SHORT TERM BENEFITS

- TELECONFERENCING:
  - SERVICE IS AFFORDABLE TO MANY FIRMS NOW AND OUR ORGANIZATION SHOULD CONSIDER FOR CERTAIN COMMUNICATIONS

## AOS INTEGRATION PROBLEMS

- OFFERINGS NOT AVAILABLE
  - VENDORS OFFERINGS CURRENTLY DO NOT HAVE INTEGRATED TECHNOLOGIES AVAILABLE FOR LARGE NUMBER OF USERS OR DEPENDING ON VENDOR BACKGROUNDS (COMMUNICATIONS, DATA PROCESSING OR WORD PROCESSING) THEIR OFFERINGS ARE NOT STRONG IN UNRELATED AREAS
  - THERE IS NOT A DOMINANT VENDOR AT THIS TIME WHO OFFERS AOS FACILITIES IN AN INTEGRATED PACKAGE
  - PLANNING WILL BE DIFFICULT IN THAT OUR CORPORATION MUST FIND WAYS AROUND COMPATIBILITY PROBLEM
  - RISK IS GREAT IN SELECTING APPROACHES WHICH WILL BECOME OBSOLETE TOO QUICKLY AND WHICH DO NOT FIT INTO THE NEXT EVOLUTIONARY STEPS OF AOS DEVELOPMENT

## VI. WHAT OTHER FIRMS ARE DOING IN AOS

### THREE CATEGORIES IDENTIFIED

- Vendor Organizations
  - Have implemented AOS components to a significant degree as show cases for products and test sites
  - Installations not always cost justified
  - Organizations usually have large networks in place

- Primarily White Collar Work Force
  - Firms deal in information (banks and insurance)
  - Will develop and test systems
  - Have separate AOS staffs with responsibility for designing new approaches, pilot programs, work with vendors to influence design, etc.
  - Committing significant funds to AOS development which they expect to recover from productivity improvements in large office staffs

- Large Manufacturing Firms
  - Some have begun studies and may have implemented some technologies offering short term benefits
  - These firms will invest less in pioneering AOS development because office salaries are smaller percentage of overall costs
  - Most have long range AOS plan or are now developing such a plan

## VII. GENERAL CONCLUSIONS

- FULL SCALE AUTOMATED OFFICE IS MORE THAN FIVE YEARS AWAY
  - DURING NEXT FIVE YEARS, MANY COMPONENTS HAVE OR WILL REACH STAGE OF DEVELOPMENT FOR OUR CORPORATION TO PROCEED WITH INSTALLATION

- COMPUTER AND TERMINAL HARDWARE TECHNOLOGY NEEDED FOR AOS IMPLEMENTATION IS AVAILABLE TODAY
  - LIMITING FACTORS: WILL BE TELECOMMUNICATIONS TO TIE HARDWARE TOGETHER AND THE SOFTWARE NEEDED TO CONTROL ITS OPERATION AND TO INTERFACE UNITS WITH INCOMPATIBLE PROTOCALS OR DATA CODING STRUCTURES

- MANAGERS MUST BE WILLING TO CHANGE WORK HABITS
  - IF BENEFITS ARE TO BE REALIZED, MANAGERS MUST BE TRAINED
  - AOS IS NOT JUST MECHANIZATION OF OFFICE PROCEDURES: IT IS A NEW METHODOLOGY FOR THE PRIMARY OFFICE TASK OF PRODUCING AND COMMUNICATING INFORMATION

- BENEFITS WILL PROVE DIFFICULT TO QUANTIFY
  - BENEFITS OF MANY OF AOS COMPONENTS ARE ASSOCIATED WITH MANAGER/PROFESSIONAL GAINING TIME - THIS TIME SAVINGS MUST BE UTILIZED
  - QUANTIFIABLE BENEFITS FROM AOS WILL BE IN THE FORM OF FEWER MANAGERS/PROFESSIONALS AND FEWER CLERICAL PEOPLE
  - THESE REDUCTIONS MAY NOT BE MEASURABLE WITH RESPECT TO INDIVIDUAL PROJECTS IMPLEMENTING AOS TECHNIQUES, ONLY IN THE AGGREGATE OVER A PERIOD OF YEARS WILL SAVINGS BE MEASURABLE
  - THEREFORE, A NUMBER OF AOS COMPONENTS WILL BE IMPLEMENTED ON BASIS OF INTUITIVE RATHER THAN HARD BENEFITS

## VIII. RECOMMENDATIONS

- LONG RANGE PLAN FOR AOS
  - THE DEVELOPMENT OF A LONG RANGE PLAN FOR AOS IMPLEMENTATION
  - WILL PROVIDE FOR PROPER COORDINATION OF AOS ACTIVITIES
  - AVOIDS HIGH RISK THAT COMPONENTS INSTALLED IN THE SHORT TERM WILL NOT FIT TOGETHER IN THE LONG TERM
  - PARTICULAR COORDINATION:

    (TWO AREAS) DEVELOPMENT OF COMPUTER DATA BASE
    COMMUNICATIONS FACILITIES
  - PROPERLY DEVELOPED LRP WILL INSURE THAT DATA BASES ARE AVAILABLE AS OFFICE TECHNOLOGY TO ACCESS THEM IS INSTALLED
  - BETTER SELECTION OF COMMUNICATIONS FACILITIES AS AOS IMPLEMENTATION CONTINUES
  - PROPER ATTENTION TO ORGANIZATIONAL AND PERSONNEL CONSIDERATIONS ASSOCIATED WITH AOS
  - PLAN WILL ALSO INCLUDE PRELIMINARY COST/BENEFIT ANALYSIS OF AOS IMPLEMENTATION ON INDIVIDUAL PROJECT AND OVERALL BASIS
  - PLAN WOULD DESCRIBE A BASIC FRAMEWORK FOR NEXT TEN YEARS AND DEFINE PROJECTS COVERING THREE YEARS
  - EXPANDED STEERING COMMITTEE COMPOSED OF ADDITIONAL LINE AND STAFF MANAGERS WOULD OVERSEE PLAN DEVELOPMENT

## • SHORT TERM RECOMMENDATIONS:

1. EXPAND STEERING COMMITTEE TO TEN PEOPLE THAT REPRESENT A CROSS SECTION OF LINE AND STAFF MANAGERS WHOSE ORGANIZATIONS WILL BE IMPACTED BY AOS

2. ADD AN ADDITIONAL COMMUNICATIONS FACILITIES PLANNING ANALYST TO THE MIS PLANNING GROUP

3. AN OFFICE SYSTEMS ANALYST SHOULD BE ADDED TO THE SYSTEMS PLANNING GROUP WHOSE FULL TIME TASK SHOULD BE THE DEVELOPMENT OF THE LONG RANGE PLAN IN CONJUNCTION WITH MIS PLANNING

4. CENTRAL MIS APPROVAL SHOULD BE ESTABLISHED FOR THE ACQUISITION OF WORD PROCESSING, FACSIMILE, AND MICROGRAPHIC EQUIPMENT SIMILAR TO THAT IN EFFECT FOR COMPUTER EQUIPMENT

5. FOUR COMPONENTS APPEAR TO HAVE SHORT TERM BENEFITS WHICH SHOULD BE CONSIDERED NOW:
   - IMPLEMENTATION OF A CBMS IN SALES DEPARTMENT ON A PILOT BASIS
   - FURTHER EXPANSION OF WP OUTSIDE THE HOME OFFICE
   - ADDITIONAL UTILIZATION OF MICROGRAPHICS IN AREA OF VENDOR INVOICES AND PURCHASE ORDERS
   - USE OF AVAILABLE VIDEO TELECONFERENCING ON A TRIAL BASIS BETWEEN CORPORATE LOCATION AND MAJOR PLANT

6. MEMBERSHIP IN AN AOS USER GROUP

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## THE PROBLEM

MANAGEMENT PHILOSOPHY

DIVERSIFIED MANAGEMENT WITH:

- DECENTRALIZED BUSINESS PLANNING AND MANAGEMENT
- GEOGRAPHICAL DISPERSION OF OPERATIONS
- HIGH CAPITAL INTENSITY
- HIGHLY AUTONOMOUS STAFF AND ORGANIZATION

## STAGES OF WP/OS DEVELOPMENT

| GROWTH PROCESSES | | | |
|---|---|---|---|
| PPLICATIONS | IMPROVE MANUAL PROCEDURES | MACHINES FOR REPETITIVE TYPING (SCATTERED) | REPETITIVE AND REVISION (LENGTHLY)<br>COST REDUCTION<br>APPLICATIONS<br>(ELIMINATE/TRANSITION SECRETARIES) |
| WP/OS RGANIZATION | NONEXISTENT | NONE<br>INDIVIDUAL DEPARTMENTS PURCHASE OWN MACHINES | ESTABLISH CENTER WITH SUPERVISOR<br>PRINCIPALS MANAGE ADMINISTRATIVE SECRETARIES |
| WP/OS PLANNING & CONTROL | NONEXISTENT<br>HIRE PEOPLE BASED ON "ASSUMPTIONS"<br>USE OF PART-TIME AND TEMPORARY | NONEXISTENT<br>APPLICATION MACHINES REQUIRE HIRING | TYPING RESOURCES "POOLED"<br>ACTIVELY SEEK NEW USERS<br>NO ATTENTION TO ADMINISTRATIVE SECRETARIES<br>PROCEDURES AND CONTROLS ESTABLISHED |
| USER AWARENESS | MINIMAL WORKLOAD REFLECTS MANPOWER<br>EMPIRE EXIST | RISING BUT REMOTE<br>"DON'T TAKE MY SECRETARY"<br>MACHINES FOR BOILERPLATE | LIMITED INVOLVEMENT<br>CENTER HANDLES OVERLOADS |
| TECHNOLOGY | TYPEWRITERS,<br>PEN AND PAPER | BLIND KEYBOARDS<br>ELECTRONIC TYPEWRITERS<br>PEN AND PAPER | BLIND KEYBOARDS REPLACED WITH CRT MACHINES<br>DICTATION SYSTEMS |
| | STAGE I<br>TRADITIONAL | STAGE II<br>APPLICATIONS | STAGE III<br>CONSOLIDATION |

## .STAGES OF WP/O$ DEVELOPMENT

GROWTH PROCESSES

| | | | |
|---|---|---|---|
| STREAMLINE CURRENT OPERATION<br>AUTOMATE FORMS AND STATISTICAL<br>BEGIN LIST PROCESSING APPLICATIONS | EXPANDED RECORDS CAPABILITIES SHARED BY USERS<br>WP/DP APPLICATIONS BEGUN<br>COMMUNICATIONS TO BRANCH AND PLANTS BEGINS (EDD) | NETWORK OF INTEGRATED INFORMATION SYSTEMS<br>ELECTRONIC MAIL SYSTEM VIA WORK WORK STATIONS<br>ACCESS TO DATA BASES FROM WORK STATIONS | APPLICATIONS |
| ADDITIONAL CENTERS ESTABLISHED<br>NEW MANAGEMENT STRUCTURE:<br>ADMINISTRATIVE SUPERVISORS<br>CORRESPONDENCE SUPERVISORS<br>TO: ADMIN. SUPPORT MANAGER | MAINTAIN SEPARATE MANAGEMENT FOR CORRESPONDENCE AND ADMINISTRATIVE SUPPORT<br>CENTER SIZES REDUCED | ADMINISTRATIVE MANAGER REPORTS TO INFORMATION MANAGER<br>CENTERS MAINTAINED WITH WORK STATION CLUSTERS | WP/OS ORGANIZATION |
| PROCEDURES AND CONTROLS STREAMLINED AND AUTOMATED<br>CHARGE-BACK SYSTEM<br>IMPROVE: MAIL SYSTEMS<br>COPYING SYSTEMS, PHONES<br>(SOMEWHAT REACTIVE) | ADMINISTRATIVE MANAGER INVOLVED WITH TASK FORCE TO DEVELOP STRATEGIC PLAN FOR AUTOMATED OFFICE SYSTEMS<br>INTEGRATION OF INFORMATION RESOURCES (PLANNING AHEAD) | PLAN IMPLEMENTATION FOR VARIOUS DEPARTMENTS<br>ELECTRONIC FILING, MAIL, COPYING AND MICROFILMING<br>CONTROLS ESTABLISHED | WP/OS PLANNING & CONTROL |
| COOPERATIVE MANAGEMENT INVOLVEMENT<br>(D.P. INTEREST BEGINS) | INVOLVED AND ACCOUNTABLE<br>(D.P. AND MIS WORKING CLOSELY) | ACCEPTANCE AND JOINT ACCOUNTABILITY | USER AWARENESS |
| CRT SOFTWARE BASED<br>SOFTWARE: LIST PROCESSING<br>SORT, FORMS,<br>STATISTICAL | SHARED LOGIC INTRODUCED<br>WORK STATION SCATTERED FROM CENTERS | INTEGRATED WORK STATIONS | TECHNOLOGY |
| STAGE IV<br>ORGANIZATION | STAGE V<br>INTEGRATION | STAGE VI<br>AUTOMATED OFFICE | |

## HISTORICAL ENVIRONMENT

- CORPORATE FOCUS BEGAN 1979
- "FORAYS" INTO WORD PROCESSING IN VARIOUS ENTITIES
- NO COMMON ORGANIZATIONAL PERSPECTIVE FOR OFFICE AUTOMATION
- LITTLE INTEREST IN COST REDUCTION OF "CLERICAL/ SECRETARIAL" FUNCTION
- DECENTRALIZED

## TECHNOLOGICAL ENVIRONMENT

VENDOR SUPPLIED TECHNOLOGY LARGELY LIMITED TO WORD PROCESSING:

- PRICE PERFORMANCE -- IMPROVING
- COMMUNICATIONS -- IMPROVING
- SUPPORT - VARIES - USER INVOLVEMENT
- STANDARDS - NONEXISTENT

PRINCIPAL SUPPORT AVAILABLE, BUT:

- NONINTEGRATED
- INCOMPLETE

ACADEMIC RESEARCH:

- DIRECTED AT FUNCTIONAL CAPABILITY
- IMPRACTICAL IMPLEMENTATION STRATEGIES

## CONCLUSIONS

- NO CONSENSUS FROM BUSINESS
- VENDORS OR ACADEMICS CAN'T AGREE
- WORLD ON THE "RIGHT" TECHNOLOGICAL DIRECTION

## RESULTS

- ADOPT FUNCTIONAL MANAGEMENT
- UNDER OBJECTIVES DESCRIBED
- MOVE TO PROGRAM MANAGEMENT AS THE TECHNOLOGY EVOLVES

## CORPORATE STRATEGY ALTERNATIVES

3. PROGRAM MANAGEMENT

- DEVELOP A CORPORATEWIDE PROGRAM FOR INTRODUCTION OF OFFICE TECHNOLOGY
- IMPLEMENT OVERALL PARTICIPATION

ADVANTAGES:

- DIRECTS RESOURCES AT A SPECIFIC TARGET
- MINIMIZES FUTURE INCOMPATIBILITY
- PROVIDES FOR BETTER CONTROL

DISADVANTAGES:

- COULD PICK WRONG TARGET
- INCONSISTENT WITH MANGEMENT STYLE

## CORPORATE STRATEGY ALTERNATIVES

2. FUNCTIONAL LEADERSHIP

- PLAN AND CONDUCT PILOTS
- EVOLVE AND PUBLISH STANDARDS/GUIDELINES
- CONSULT ON CORPORATEWIDE BASIS

ADVANTAGES:

- MORE AGGRESSIVE APPROACH
- STANDARDIZATION THROUGH COMMON DEVELOPMENT
- REDUCTION OF INCOMPATIBILITY
- CONSISTENT WITH MANAGEMENT PHILOSOPHY

DISADVANTAGES:

- HIGHER SHORT-TERM COST

## CORPORATE STRATEGY ALTERNATIVES

1. CLEARINGHOUSE

- ACT AS INFORMATION SOURCE ONLY
- ACT AS FOCUS FOR OUTSIDE CONTACT
- PROVIDE DIRECT SUPPORT TO HEADQUARTERS IMPLEMENTATION

ADVANTAGES:

- LOW SHORT-TERM COST
- CENTRAL FOCUS
- AGREES WITH MANAGEMENT PHILOSOPHY -- DECENTRALIZED

DISADVANTAGES:

- REDUNDANT DEVELOPMENT PROBABLE
- LONG-TERM INCOMPATABILITY
- LONG-TERM COSTS HIGH

# INTERNAL AWARENESS PROGRAM

PRELIMINARY RESULTS:

- LOW OVERALL AWARENESS OF OA TECHNOLOGIES AND BENEFITS
- STUDIES AND EXPERIMENTS PROLIFERATE
- WIDE RANGE OF VENDORS/HARDWARE OF WORD PROCESSING TECHNOLOGIES
- DESIRE FOR LEADERSHIP (WITHOUT CONSTRAINTS)

"IF WE LIVE THROUGH IT...WE'LL LOVE IT"

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## THE CHOICES

STRATEGIES:

1. CLEARINGHOUSE ROLE
2. FUNCTIONAL LEADERSHIP
3. PROGRAM MANAGEMENT

## FUTURE DIRECTION

- CONTINUE CURRENT CORPORATE ACTIVITIES
  - AWARENESS PROGRAM
  - PILOT PROJECTS

AND

- SELECT OVERALL CORPORATE STRATEGY FOR FUTURE MANAGEMENT OF OA IN DECENTRALIZED ENVIRONMENT
- DEVELOP PLAN FOR SELECTED STRATEGY

WHILE:

- MINIMIZING CUSTOM DEVELOPMENT
- MANAGING THE "STAGES OF GROWTH AND DEVELOPMENT"
- MONITORING TECHNOLOGICAL DEVELOPMENT
- MINIMIZING ORGANIZATIONAL CHAOS
- PAYING FOR FLEXIBILITY

## PLANNING OBJECTIVES

PRODUCTIVITY:

- TO EXTEND OR MAGNIFY THE EFFECTIVENESS OF THE PRINCIPAL AND SUPPORTING ADMINISTRATIVE FUNCTIONS THROUGH THE APPLICATION OF COMPUTER AND TELECOMMUNICATIONS TECHNOLOGIES

EFFICIENCY:

- CONTINUE TO REDUCE THE COST OF THE ADMINISTRATIVE ACTIVITIES OF THE ORGANIZATION THROUGH THE APPLICATION OF AUTOMATED OFFICE TECHNOLOGY

GIVEN THIS ENVIRONMENT WHAT

OBJECTIVES SHOULD STRATEGIC

PLANNING FOR OFFICE AUTOMATION

STRIVE TO ACHIEVE?

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# FUNCTIONAL MANAGEMENT PLANNING GOALS
## 1980

- MAINTAIN HIGH LEVEL OF TECHNOLOGICAL SUPPORT
- DEVELOP SHORT- AND LONG-RANGE PLANS FOR OA
- RAISE LEVEL OF UNDERSTANDING
- SELECT AREAS OF POTENTIALLY HIGH RETURN
- EXPERIMENT -- R&D
- PAY YOUR WAY
  - INCREASE EFFECTIVENESS
  - CONTROL COSTS

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## CREATIVE ACCOUNTABILITY

- COST AVOIDANCE → EFFICIENCY
- VALUE ADDED → EFFECTIVENESS
- TECHNOLOGICAL IMPERATIVE → SURVIVAL

- FUTURE BUSINESS CONDITIONS WILL DEMAND

# THE INFORMATION MANAGER AS A CATALYST

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*Wednesday Afternoon*
*June 25, 1980*

## THE INFORMATION MANAGER AS A CATALYST

**Management** has been defined as the process of accomplishing results through the efforts of other people. This means that managers must not only plan and control, but also organize and motivate, large numbers of human beings. Any discussion of the information manager as a catalyst is strictly academic unless it acknowledges the total dependence of these systems upon human effort in their design, implementation, and application.

In order for the manager to be a catalyst, or change agent, he or she must identify the factors whose discriminating use will help to create an effective control climate.

Fundamental to appreciating the problems the information manager faces today is the concept of exponential growth (1). To illustrate the propensity for rapid change, return to the year 1825 when the speed of the first steam locomotive to provide passenger service was only 13 miles per hour. In the 1880's, a more advanced steam locomotive increased this speed to 100 miles per hour. The airplane made it possible to pass the 400-mile-per-hour speed in 1938. This speed increased in order of magnitude to 4,000 miles per hour by the 1960's with the advent of the jet planes. Today, less than 20 years later, space capsules circle the earth at 18,000 miles per hour.

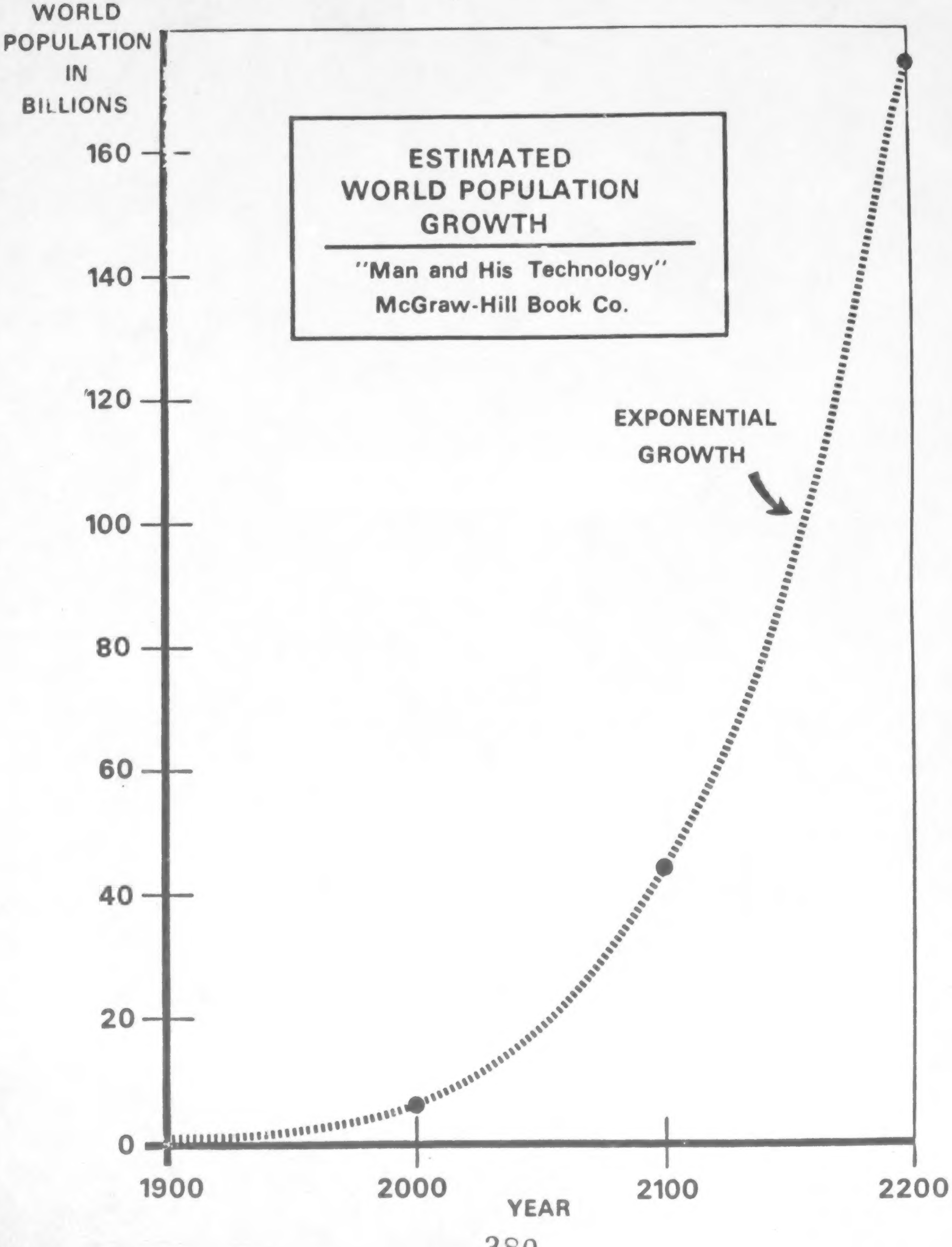
The phenomenon of exponential growth is to be found in many aspects of today's society. For example, the level of energy consumption for electric power generation in the United States is rising at an increasing rate.

Exponential growth can be better appreciated, perhaps, by thinking of the time it takes a quantity to double in size at a given growth rate:

| Growth Rate, Percent Per Year | Doubling Time In Years |
|---|---|
| 1 | 70 |
| 2 | 35 |
| 4 | 18 |
| 7 | 10 |
| 10 | 7 |

The impact of exponential growth is not apparent in early stages when the rate is applied to a small base. However, a modest beginning can become a crashing catastrophy or a booming success in a short time as the growth rate accelerates exponentially. The exponential rate predicting world population growth is dramatically illustrated in the accompanying graph.

Fortunately for the information manager, as speed has been increasing exponentially, knowledge and technology are also increasing exponentially. Thus, the manager has more powerful tools with which to manage uncertainty and accommodate complexity. This has become an acknowledged fact with the proliferation of high-technology products in the data processing, word processing, and computer fields.


WORLD POPULATION IN BILLIONS
160
140
120
100
80
60
40
20
0
ESTIMATED WORLD POPULATION GROWTH
"Man and His Technology"
McGraw-Hill Book Co.
EXPONENTIAL GROWTH
1900
2000
2100
2200
YEAR

# THE INFORMATION MANAGER AS A CATALYST

A recent article in BUSINESS WEEK (March 24, 1980) highlights this proliferation and the resulting problems of inadequate management. It states, "In 1979 nearly 71,000 word processors were shipped, a hefty 23% of the total number of units installed at the beginning of the year, according to International Data Corp., the Waltham (Mass.) market research firm."

Some may view this situation with alarm. However, most of the information manager's problems, as well as opportunities, are the outgrowth of either society's complexity or its propensity to rapid change. Today's information manager can be certain of only one thing: that the process of change is inevitable and unending. S/he can influence and direct it for good or otherwise according to the thought and effort brought to bear upon it. The process of change is a great opportunity--indeed, it is the very reason for a manager's function. For this reason, a manager must be equipped to coordinate diverse influences and activities in order to control these rather than be controlled by them.

Management is the process of setting and achieving objectives by influencing human behavior within a suitable environment. Managers, on the other hand create the environment that is conducive to the performance of other individuals--acts that will accomplish an organization's objectives, or goals, as well as achieve one or more objectives of the participating individuals. A manager in determining the collective objectives of an undertaking and generating an environment for their achievement becomes a catalyst.

A manager's prime task is to create a healthy physical and mental work climate which will induce others to willingly contribute their efforts. To do so a manager must plan, organize, control, and direct.

Planning, a separate function, is a rational, economic, and systematic way of making decisions today that affect the future. Organizing is intertwined with planning and other managerial functions. In communicating, in directing, in fixing limits, etc., a manager is involved with the organizing as well as the planning process. Organization is involved in every communication; is part of every plan, and is a vital part of any attempt on the manager's part to check or control activities. Thus, over and above planning and organizing is the managerial activity referred to as directing. Unplanned, disorganized directives are meaningless. Thus directing, to be effective, must be intermixed with planning and organizing.

If the participants actions, or the results of their work, do not comply with planned achievements, this must be communicated to the participants to remedy the situation. This control function is equally involved with the planning, organizing, and directing activities and cannot stand alone.

Controlling is forcing events to conform to preconceived plans. Planning is an integral part of control. A manager controls, of course, through the actions of his/her employees.

The meaning and significance of management control lies in the ways that complexity and change can be influenced and directed. Such influence and direction can be accomplished only if management control is regarded as something creative and open-ended rather than as something negative and restrictive.

The question is "How?" The answer lies in understanding the kinds of problems that are created for managers by the factors of complexity and change. In addition, useful ways must be developed to handle these problems and apply relevant principles and concepts.

As there is no tailor-made way to handle the problems arising from complexity and change, these problems must be considered against the background environment of each organization. Suppressing change will stunt progress and creativity--the very attributes that bring about progress. Wherever there is progress there inevitably must be growth and vitality, motivation and initiative. These are the factors that the successful information manager must promote and harness as progress is nothing more than change for the better.

Paradoxically, the attributes of change tend to be in the forefront of the factors that make the manager's job complex. Thus, management control can only be discussed against the background of complexity and change. The most obvious need for a systematic approach to control arises from the complex and ever-changing information systems of which we are the servants and the served. Effective control has led to a number of developments that can be expressed by such descriptive terms as centralization versus decentralization, feasibility studies or measurements, electronic data processing, and internal audit. It is interesting to note that though each of these developments represent possible solutions to problems of control, the solutions, in turn, create additional problems. These developments must be considered in broader perspective before we fully understand what is meant by the "manager as a catalyst."

In all professions there is a right way and wrong way to do a job. There is a disciplined approach, a systematic sequence of steps that is recognized to yield better results more efficiently than any other possible sequence of steps. In such a sequence, the omission or transposition of any step can prejudice either the result itself or the efficiency with which the result is obtained.

A manager's acts are readily recognized in the physical realm (2). Basically, they are in the form of gesturing, talking, and demonstrating.

In the conceptual realm, the manager's acts are not so easily recognizable as we cannot see the manager think, evaluate, or make a decision. We can see the effects but not the conceptual activity.

Some claim that a manager's job is intuitive rather than reasoned. This cannot be true. Decisions are not formed out of nothing but reflect an individual's total mental capacity. The mind is a storage vault of concepts, facts, and impressions that are available in the decision-making process.

As a reminder, the definition for a catalyst is taken from the field of chemistry. The dictionary defines it as follows: "A substance, usually present in small amounts relative to the reactants, that modifies, especially increases, the rate of a chemical reaction without being consumed in the process. 2. One that precipitates a process or event, especially without being involved in or changed by the consequences.

You agree, I am sure, that managing consists of physical and conceptual acts that affect or yield physical and conceptual environments. Thus, we can express the effectiveness of these acts in the following flow chart:

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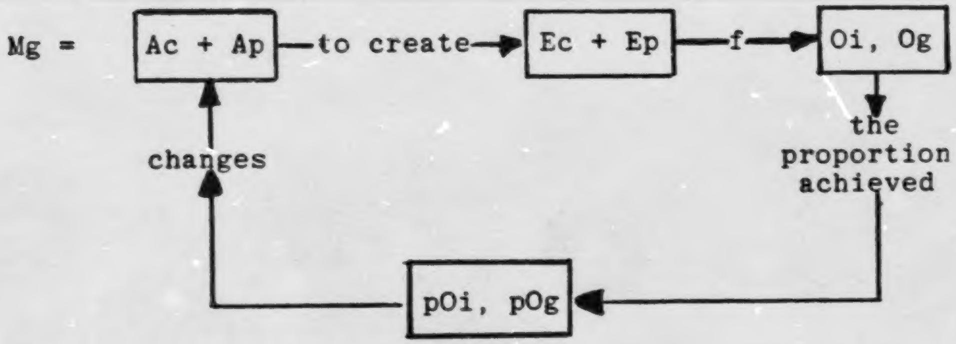

This model illustrates that management (Mg) encompasses conceptual acts (Ac) plus physical acts (Ap) to create the conceptual environment (Ec) plus the physical environment (Ep). These are functions of the manager's individual objectives (Oi) and group (corporate) objectives (Og). These goals are never fully achieved.

An effective manager, or one who acts as a catalyst, develops a high percentage (p) of the organization's goals as well as the individual's goals and uses feedback to modify management techniques.

Information systems planning deals with the long-term future of an organization. A disciplined approach is surely essential. It is unnecessary to dwell on the need for a disciplined methodology in systems planning. The only reason for mentioning it is its evident lack in the Government bureaucracy. However, a really successful information/word processing system can only be evolved from a blend of careful theoretical consideration together with much practical experience. The function of planning is to decide what the long-term objectives are and how to achieve them.

Too often, when a budget is prepared for an organization, each department tells the budget analysts what they hope to do next year. A budget has never been considered a plan. It is considered a forecast. Obviously, "If you don't know where you're going, any road may do."

## THE INFORMATION MANAGER AS A CATALYST

The information manager needs to (1) Determine the objective and decide on a target, (2) Prepare a forecast and estimate the probable error, (3) Calculate the planning gap and decide the task, (4) Decide constraints and means, and (5) Draw up the plan.

It is extremely important to clearly identify your objectives. This answer contains the very essence of planning: If you do not know what you want, you cannot decide how to get it.

In Government, which so often gives safety priority over speed, we find more frequent use of concurring authority than in business. On an important matter, it is not uncommon for a Government worker to have to secure approval, or "clearance," from four or five staff units. Dynamic action is difficult in such a system.

Rarely, of course, can we fully attain the ideal--partly because actual needs do not conform to a forecast, partly because people qualified to man a new organization may not be available, and partly because of inertia.

Before we can understand the scope of management control, we must first identify the most common and significant situations requiring its exercise. Such a review will help highlight the aspects of control that are common to all organized activity. The pattern of problems that emerge from such a review will also add meaning to the word "control."

In 1952 the General Electric Company embarked on what is described as a measurements project (3). A similar project of measurements would assist information managers. For example:

1. Common measurements would provide the manager and the individual operator with means to measure and plan their own performance so decisions could be made on the basis of knowledge and informed judgment.
2. Common measurements would provide each manager with feedback that would allow continuous adjustments in operations.
3. Common measurements would provide a means of appraisal, selection, and compensation on the basis of objective performance, rather than personality judgments.
4. Common measurements would provide motivation for better performance, since they make clear on what basis the individual is to be measured and provide the individual a way to measure personal effectiveness.
5. Common measurements would provide other managers a familiar language with which to think and discuss the organization, especially its quantitative aspects.

In addition, measurements help managers determine where to invest limited capital and human resources. Further, the manager will be able to ascertain the relative degree of success or failure being attained by each of the existing units, the potential of any new ventures, and to appraise personal decisions. The focus of control may change within the managerial hierarchy, but not the factors that ultimately make that control necessary.

An extremely close relationship exists between decision making and a well thought-out concept of control. There is always some interaction between decision making and performance measurements. The better the system of control, the easier it is for the manager to make all subsequent decisions. Effective control provides in advance the criteria or performance standards against which the results of subsequent decisions will be measured. Under such relatively idealized circumstances, decision making becomes largely a matter of choosing among a number of circumscribed alternatives. Whenever operations show a trend away from desired norms, plans, or procedures, decision making is set in motion. The purpose of the decision is to find the best way to bring actual performance in line with desired results.

Expressed in another way, a good manager will create an environment conducive to "management by exception" in which only the things that are not going according to plan are called to the attention of the person responsible for corrective action.

To relate communications with a need for concepts of control may at first seem farfetched. Actually, however, control and communication have much in common. Split-second communication is constantly changing the needs and desires of our world due to electron developments. For example, the information contained in reports, whether of an accounting, budgetary, or statistical nature, is foremost among the formal methods of communication in large organizations. Accounting and other figure information are also used to express or "communicate" in quantitative form the various goals and objectives of the organization. However, information in itself provides no control.

Let us pause to distinguish wisdom from knowledge from information from data. Wisdom refers to wise judgment resulting from an understanding of the situation. Knowledge refers to the condition of apprehending truth or fact. Information is the communication of knowledge. Data are the unstructured, uninformed facts.

Information can be considered as selected data which reduces ignorance or uncertainty in decision making. The amount of information required by a manager before making a decision is proportional to the uncertainty surrounding the situation.

Information can also be considered as evaluated data. Data refer to materials that have not been evaluated by specific planners in a particular situation. Information, in contrast, is material that has been evaluated with respect to the user and to the time and place it is going to be used. Timeliness of information and discrimination in its use, not quantity of data, are necessary prerequisites to control. The complexities of a communications system are not the result solely of mechanical intricacies or organizational size. Two people talking face to face are a sufficient study in the complexity of communications--that is, in the transmittal of information to verify this fact.

The human element has been discussed in the foregoing, but the main focus has been on management concepts and problems. However, the most crucial responsibility of any manager is the people problem. People are the basic resource or asset of any business. In addition, they are the most expensive resource and one that can be depleted the fastest. It takes time to build a productive team; but it can be depleted in a short period of misrule. A knowledgeable, productive worker represents a tremendous capital investment and this is bound to increase steadily--as it has in the last ten years. These demands have doubled every ten to twenty years and there is no reason to anticipate a slowing down of this trend.

Parallel with this will go an increase in the demands of the organization on the ability of its managers. How well managers manage determines whether business goals will be reached. It also largely determines how well the enterprise manages worker and work. The worker's attitude reflects, above all, the attitude of direct management. It directly mirrors management's competence and structure. The worker's effectiveness and productivity are determined largely by the way s/he is being managed.

Peter Drucker stated (4), "Power and authority are two different things. Management has no power. Management has only responsibility. And it needs and must have the authority to discharge its responsibilities--and not one whit more.

"Responsibility built into the work force from top to bottom is needed, above all, to reverse the erosion of management authority which is a threat of the functioning of management and of our institutions altogether. Carrot and stick no longer suffice. But nothing has truly taken their place. As a result there is an authority vacuum. It is most noticeable among the knowledge workers in business, in the government agency, and in the other service institutions. Its symptom is cynicism--a more dangerous disease than rebellion against authority. The only way to counteract it and to restore management's authority is to demand responsibility of each member of the work force."

The manner in which the manager views the work force will determine his or her management approach. There are three traditional approaches to managing people. There is the welfare approach, that sees people as problems which need help. There is the personnel management approach, that sees activities and chores to be performed whenever large numbers of people have to work together. The third approach sees labor as a cost that is nonproductive (that is, "overhead") and that human resources so engaged might be more profitably employed. The validity of this approach and its assumptions are open to question.

The welfare approach is not one for managing people. It is an approach for helping people and does not try to find the strengths that make them productive.

The personnel management approach is methodical and systematically discharges such activities as selection and employment, training, medical services, the administration of wages and benefits, etc. This approach is largely concerned with matters important to the work community but should not be considered a management function.

The last traditional approach to managing people, i.e., that views them only as a cost, is in itself degrading to the worker. An enlightened manager will accentuate the strengths of people and negate their weaknesses in order to optimize our most expensive resource.

Only managers who view people as valuable resources, not as problems, procedures, and costs, are true catalysts.

The manager has the further responsibility of building achievement into positions and into the work force. There needs to be objectives for every job. The work itself has to be made productive for the worker needs the demand, the discipline, and the incentive of responsibility.

What if the worker requires training before responsibility can be added? Won't this require developing personnel?

Personnel development includes the following:

1. Training programs in major functional areas.
2. Programs to provide both specialist know-how and managerial skill.
3. Provision of an adequate supply of qualified personnel to supply for both normal attrition and future expansion.
4. Stimulating individuals to grow on the job through full use of their capabilities.

Measuring performance in the area of personnel development involves the following questions:

1. How good a job is being done in selecting individuals for these positions?
2. Is there on-the-job training that provides information and knowledge about general matters and particular positions requiring advanced training.
3. Is there any provision for periodically reviewing the performance of individuals, for discussing the person's caliber of work, for providing help and consultation, and for identifying especially promising talent?
4. Is anything being done to see that individuals are placed in jobs commensurate with their abilities and interests and that promotions come to those who merit them?

You, the manager can decide whether training is required. The next step is to measure your developmental programs. A direct measurement would be the degree of progress achieved by employees as evidenced by promotions within the department, transfers to higher positions in other components, and the number of qualified individuals made available for promotion to higher positions. In addition, there are ways of measuring the employee's performance based on a simple rating scale such as: (A) improvement, (B) no change, (C) deterioration, (D) appraised for the first time. The total of these percentages would equal 100 percent. The picture projected would suggest partly, at least, the overall success of an employee development program.

In summary, a fundamental purpose for measuring personnel development is to stimulate added interest among managers regarding the organization's personnel procedure. In addition, these personnel development measures will focus attention on key areas, neglect of which will be felt, not in the short run but rather over the years. Changes from one period to another must be watched. The very fact that personnel development builds for the future makes it easy to neglect the present, unless it is subject to continued review.

Although human beings are exceedingly complex organisms, a very simple model can be constructed for predicting behavior. This model is based on the assumptions that all human behavior is directed toward goal satisfaction and that motivation to action is provided by physiological and psychological needs. Achieving the goal satisfies the needs and action ceases. Obviously, this is oversimplified.

Human needs, also, may be classified as (1) primary or physiological needs, and (2) secondary needs derived from interaction with the environment. As the more basic needs are satisfied, other needs at different levels increase in importance. The following levels of need priority have been suggested by A. H. Maslow.

1. Basic physiological needs--food, water, air, and warmth.
2. Safety--from external danger, injury, and physical discomforts. People are also concerned with economic and social security.
3. Love, affection, and social activity--includes interaction with other people and acceptance by them.
4. Esteem and self-respect--Every individual, to some extent, needs to feel important and to believe that s/he is making a worthy contribution and is respected by others.
5. Self-realization and accomplishment--This is the individual's need to achieve their optimum purpose in life, to utilize their abilities to the highest degree possible.

Over the last 100 years much has been done toward satisfying the most basic needs of survival and safety. However, many trends in modern society have acted to increase the feeling of insecurity. The individual today is highly dependent on many associates in the organization. This situation increases feelings of insecurity. A

**computer-based** information system serves to increase this awareness of interdependence. It also amplifies the individual's knowledge of need levels. People know where they fit on Maslow's hierarchy of needs and are not satisfied to settle for less.

However, the dependent relationship between the organization and the individual is a two-way street. Not only must the individual make an adjustment to the demands of the organization, but the organization must also make adjustment to the demands of the individual. The behavior of the individual is the result of the combination of, and interaction between, his or her original nature and unique experience and the environment.

People are affected by those environmental factors which they actually experience. A behavioral model has a closed loop, called the learning process, consisting of behavior, measuring and evaluating, recording the results, and modifying the behavior based on past experience. The individual is continually receiving information, acting on the environment, and modifying personal behavior.

The way in which the individual responds to pressures by the manager is greatly influenced by previous experiences. This fact helps us to understand attitude, which may be defined as a predisposition to act in a specific manner toward a person, object, or situation.

Attitude can be defined as a generalized point of view toward objects, events, or persons which might serve to influence future behavior. You may ask, "Are not the attitudes of employees reflected every day in individual, work, and group performances? Do not productivity measurements amply indicate the degree of favorableness or unfavorableness with which employees regard the organization and their jobs?

Obviously, these are indicators of an employee's current attitudes. But such indicators, especially of an overall nature like productivity has at least two shortcomings: (1) they often tell of trouble only after the harm has been done, and more importantly, (2) they provide little or no information about the real or imagined source of any difficulty. Each of us creates a mind-model of real /-- a warehouse of images.

Because human behavior and attitude are so complex, proper measurements in the area of employee attitudes can make two major contributions to overall organizational success. (1) They aid in identifying potential friction spots soon enough to take corrective action. (2) They help isolate attitudes regarding such matters as working conditions, compensations, promotion opportunities, supervision, etc.

Some of the shortcomings that precede indicators are (1) the general level of morale in a work group may be evident but provide no basis for identifying causes. Turnover increases, but whether because of job dissatisfaction or for some other reason cannot be determined. (2) Because these indications are relatively commonplace, the manager tends to minimize their importance or place the responsibility for changing the situation on someone else. (3) Certain unfavorable trends can be attributed to unsettling external factors rather than to some shortcoming of management.

The second approach to measuring employee attitudes involves asking the employee a series of specific questions. These questions would focus on particular attitude areas. A tabulation of replies by work groups will tend to indicate the areas in which the real or imagined satisfaction or dissatisfaction lies. Responsibility for these situations can be pinpointed and corrective action taken. In all cases anonymity should be preserved except for the particular work group.

Briefly stated, the principal purpose of employee attitude measurement is ultimately to help managers become better managers of people. Attitude surveys, in particular, focus attention on potential causes of difficulty in time to do something constructive about them. They can also help to create a profitable, productive, and satisfying work environment, if handled properly.

It should be pointed out that measuring employee morale should be handled with a light hand. Improvement in attitudes is seldom something that can be approached directly. The direct approach smacks too much of manipulation. Satisfactory attitudes result from the manager doing a superior job of handling personnel matters with integrity, honesty, and fairness.

The attitude of an individual toward computers and quantitative techniques generally will have a major impact on that person's specific reaction to a computer-based planning system. We know that attitudes, unfortunately, are highly resistant to change. In fact, often an individual's attitudes cannot be changed unless the attitude of the group is also altered. Group acceptance, then is a prerequisite to the individual's acceptance.

Social behavior is largely determined by the manner in which individuals perceive themselves in the environment in which they function. The nature of this perception is primarily a learned response to both internal and external stimuli; a response learned mainly through social experiences. People see what they want to see.

People behave in accordance with the way in which they perceive their environment, not necessarily according to the way it actually is.

This raises the subject of what some consider instability when actually it is simply frustration; an emotional state resulting from the inability of the individual to achieve desired goals. Such a situation arises when the individual's behavior is not effective in reaching the goals that would remove the irritation.

# THE INFORMATION MANAGER AS A CATALYST

Frustration is a feeling--not a fact--and the type of behavior which results from it is largely determined by the individual's own self-image. Conflict, also, is entirely a psychological phenomenon reflecting the individual's perception of the situation. There is no conflict in the situation per se, only in the way it is perceived.

Frequently frustration is a result of a manager's setting unrealistic goals beyond the individual's ability to attain them. In other instances, frustration arises from conflict between goals. The personality of the manager is threatened by conflicts involving intense personal needs and critical goals.

Managers or staff members threatened by a computer-based system may react by changing their perception of the situation. In less desirable instances, they may react by attacking the system. They may also adjust by ignoring it in the hope that "it will go away." Using another adjustment mechanism, individuals may compensate by directing their energies with new intensity in other directions or by substituting one goal for another. Frustration is inherent in the interaction of human beings and is aggravated by any change in their customary modes of living.

It is very important that the first exposure of managers to a computer-based system be a favorable one. It is just as important that the operator's first exposure to a computer-based system be a favorable one. The initial installation must be successful. The results of a failure may require months to erase. The classic rule for gaining acceptance is participation. User involvement is important not only to gain acceptance but also to validate the system. Experienced operators can observe a simulation model and immediately put their fingers on errors of operation. However, participation is too often ignored to the detriment of all concerned. It is high time that competition between managers involved in different organizational perspectives give way to cooperation; ignorance must be replaced by knowledge.

Today's managers horizon must be extended beyond management theory introduced by the early pioneer writers. Management, as we know it today, has attained its knowledge, progress, and position through the efforts of numerous men and women working in its behalf over the centuries.

Pioneer writers introduced different facets of management. There was the traditional or classical school; the behavioral school; the management process school; and the quantitative school.

Mechanization and invention became the accepted norm with amalgamation and big business. Machines gradually replaced labor skills. This became known as the industrialized society (Toffler refers to it as the second wave.). Individual output, production, and maximum efficiency were emphasized (Is this familiar in your organization?). In such surroundings, managers with no training flourished. Without leadership experience, they became dictatorial and abusive in using their increased authority. Employees were haphazardly placed according to the whim of the supervisor instead of being assigned to tasks that utilized their abilities. Thus workers did not respond with their best efforts but rebelled to beat the system.

These conditions prevailed when Fredrick W. Taylor developed his brand of management. Taylor defined the problem, analyzed the work situation, applied measurement devices, experimented with various techniques to develop management principles. He proved the validity of his principles by subsequent applications. Taylor is well known for his use of stopwatch time studies to determine the standard output that constituted a fair day's work.

He established the principle of standards with reward for meeting them and penalty for not achieving them. He focused on increasing the worker's output rather than on labor cost and encouraged management to improve working conditions, reduce physical effort, and allow workers to develop to their fullest potential. Taylor was catalytic in developing traditional management as he precipitated the process.

Frank and Lillian Gilbreths developed rules of motion economy, particularly the basic hand motions. Mrs. Gilbreth introduced a behavioral concept when she wrote about psychological factors and their importance to worker adjustment and productivity.

Mary Parker Follett's philosophy incorporated an understanding of influences that motivated the individual and the group. Basically, she emphasized that a man at work was motivated by the same forces that influence his duties and pleasures away from the job and that the manager's job was to harmonize and coordinate group efforts--not to force and drive. She added the words "togetherness" and "group thinking" to management literature.

Chester I. Barnard analyzed the qualities of forces at work in an organization. He propounded that an organization was a system of interactions whose continuance depended on the balance between the individual member's contributions and the satisfactions he derived. Barnard saw the manager's job as one of allocating "satisfactions"--money, status, etc., to evoke coordinated and prescribed behavior.

The management process theorists viewed management as the same in industry, Government, and institutions. Henri Fayol categorized managerial functions as (1) forecasting and planning, (2) organizing, (3) commanding, (4) controlling, and (5) coordinating. He considered commanding and coordinating necessary to initiate and effectively operate a system of work, with control as the system of checks.

The end of World War II gave rise to the quantitative school of management. This brought together scientists from several disciplines to study a problem and provide a quantitative basis for managerial decisions. The operations research activity that had been so valuable to military leaders became a part of the industrial climate. In the United States the application of operations research techniques to business operations was not immediately accepted. Executives, already accustomed to management consulting and industrial engineering, believed that operations research was simply an application of old techniques. However, operations research was immediately instituted in the nationalized industries in Great Britain.

Management in this new perspective consists of accomplishing objectives with the use of participants from other disciplines by developing a physical and conceptual environment that will elicit their participation. Under such circumstances, a manager is not a specialist in the usual sense of the word. Instead, s/he is a composite specialist--one who sees and comprehends the totality of associative situations.

Today's managers with all their eclecticism and comprehension do not really understand their developing profession. It is still too nebulous. Nor do they understand some of their motives, some of their actions, their relative position in society, or their future position. In fact, it is doubtful at this time that any one individual has all the answers. This we do know: there is evolution and forward development in the management field.

## SUMMARY

It is time for a massive effort at management reeducation. The quantitative literature of the past two decades is inappropriate. Moreover, classic management theory is too poorly defined and structured for our information systems environment. The manager must continually adapt goals and processes to changing opportunities and constraints within our environment of exploding population and depleting resources. Only when today's manager keeps theory and practice in proper perspective can s/he manage the ever-developing, complex information-systems type of business conglomeration.

In view of the needs and rapid changes encountered in information systems, the manager's role must eliminate the constraints of time and information availability if the world's depleting resources are to be effectively organized.

The exponential growth and convergence of technology, combined with expanding knowledge,demand that control at management levels in today's communication world be creative and ongoing. If management fails to serve as a catalyst,it is not achieving its purpose and potential.

The managing process, therefore, is not a series of separate functions (planning, organizing, directing, and controlling) that can be performed independently. Instead, management is a composite process made up of these individual components.

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# HOW TO CREATE A CAREER PATH IN INFORMATION PROCESSING

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# CAREER PATHS IN INFORMATION PROCESSING

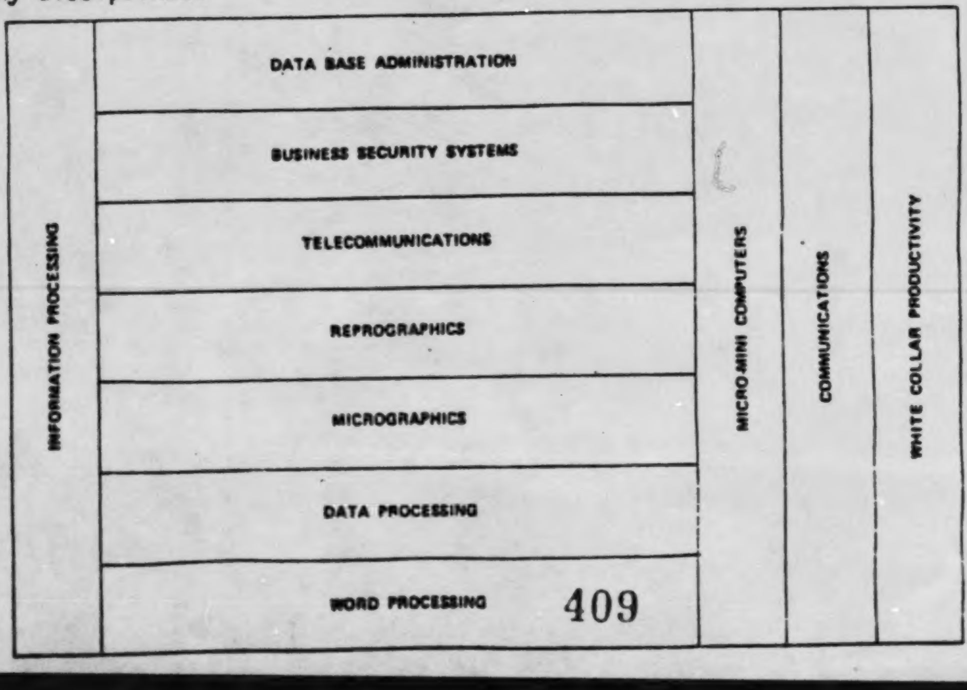
## 1. Introduction

There are three themes prevalent in the technical publications in the last year. They are:

- The death/change of MIS
- The merging of DP/WP
- The birth of Information Processing

The themes are symptomatic of the seriousness business is placing on the Office of the Future. Information is being processed at a decentralized level (a change from the centralized concept of MIS) with word processors and distributed processing systems. This trend has coined a new term: Information Processing. The merging of Data Processing and Word Processing is the result of similarities in technology.

Information Processing is an all encompassing term which combines many disciplines.


INFORMATION PROCESSING
DATA BASE ADMINISTRATION
BUSINESS SECURITY SYSTEMS
TELECOMMUNICATIONS
REPROGRAPHICS
MICROGRAPHICS
DATA PROCESSING
WORD PROCESSING
MICRO-MINI COMPUTERS
COMMUNICATIONS
WHITE COLLAR PRODUCTIVITY

The common denominators which link the disciplines together are technology (microprocessors, mini computers), communicating capabilities with each other and a shared emphasis on white collar productivity.

Information Processing is a new and exciting concept but it does not apply to a career path. There are NO career paths in Information Processing. A parallel exists in Management Information System careers. There is a Director of MIS and you will be seeing more Directors of Information Processing. There are no MIS trainees, or Intermediate MISers. What does exist is a MIS umbrella with functional areas such as: System designer, programmers, user groups, etc. The manager is an MIS professional. The workers are identified with the functional area. The choice of both the MIS and the Information Processing manager-to-be is to become an expert in one or more of the disciplines or to become a generalist in all.

The definition of a career path is simply stated:

- Know where you have been
- Know where you are
- Know where you CAN go
- Use peer understood terminology to define your job.

When investigating a career path in a discipline, it is important to look at the salaries paid to the entry level positions and the managerial position. This transition will give you an indicator of the worth of the function to the organization and the range of positions in the middle.

# CAREER PATHS IN INFORMATION PROCESSING

Figure 2 is a representation of entering level salaries in the functional areas we've described for Information Processing. Figure 3 is a representation of the supervisors or managers salaries of the same groups. The salaries are based upon the DATAMATION 1980 Salary Survey. When reviewing the two groups of salary information, it is noteworthy that the Word Processing professional is in the top (64 percentile) of the entering level salaries. However, as a manager the Word Processing professional has slipped to the lower portion of the managers scale (21%).

Figure 2

## ENTERING LEVEL SALARIES

| | ANNUAL |
|---|---|
| DATA ENTRY TRAINEE | 8,986 |
| MICROGRAPHIC PRODUCTION/DUPL. TECH | 9,364 |
| APPLICATION PROGRAM TEAM LIBRARIAN | 10,218 |
| PRODUCTION CONTROL CLERK | 10,485 |
| COMPUTER OPERATIONS TRAINEE | 10,653 |
| DATA ENTRY OPERATOR | 10,964 |
| POST PROCESSING CLERK | 11,109 |
| MAGNETIC MEDIA LIBRARIAN | 11,311 |
| COMPUTER OPERATIONS OPERATOR | 11,322 |
| DATA ENTRY LEAD | 11,460 |
| WORD PROCESSING OPERATOR | 11,528 |
| PROGRAM LIBRARIAN (OPERATING SYSTEMS) | 12,834 |
| PRODUCTION CONTROL, LEAD | 12,904 |
| APPLICATION PROGRAMMING TRAINEE | 13,024 |
| JUNIOR EQUIPMENT OPERATOR (MICROGRAPHICS) | 13,156 |
| SYSTEMS/PROGRAMMING TRAINEE | 13,951 |
| DOCUMENTATION LIBRARIAN | 14,888 |
| USER LIASON/SERVICES COORDINATOR | 20,750 |

*BASED ON DATAMATION
1980 SALARY SURVEY

CAREER PATHS IN INFORMATION PROCESSING

## Figure 3

## SUPERVISOR/MANAGERS SALARIES

| | ANNUAL |
|---|---|
| DATA ENTRY SUPERVISOR | 14,101 |
| PRODUCTION CONTROL SUPERVISOR | 16,590 |
| WORD PROCESSING SUPERVISOR | 17,777 |
| MANAGER DP OPERATIONS | 21,098 |
| MANAGER COMPUTER OPERATIONS | 23,000 |
| APPLICATION PROGRAMMING MANAGER | 25,975 |
| MANAGER SYSTEMS AND PROGRAMMING | 26,305 |
| MANAGER DATA COMMUNICATIONS/TELECOMMUNICATIONS | 27,237 |
| MICROGRAPHICS OPERATION MANAGER | 27,456 |
| DATABASE ADMINISTRATION MANAGER | 27,844 |
| MANAGER OPERATING SYSTEMS | 28,317 |
| DIVISION DIRECTOR DP/MIS | 29,315 |
| MANAGER SYSTEMS ANALYSIS | 29,323 |
| CORPORATE DIRECTOR DP/MIS | 34,095 |

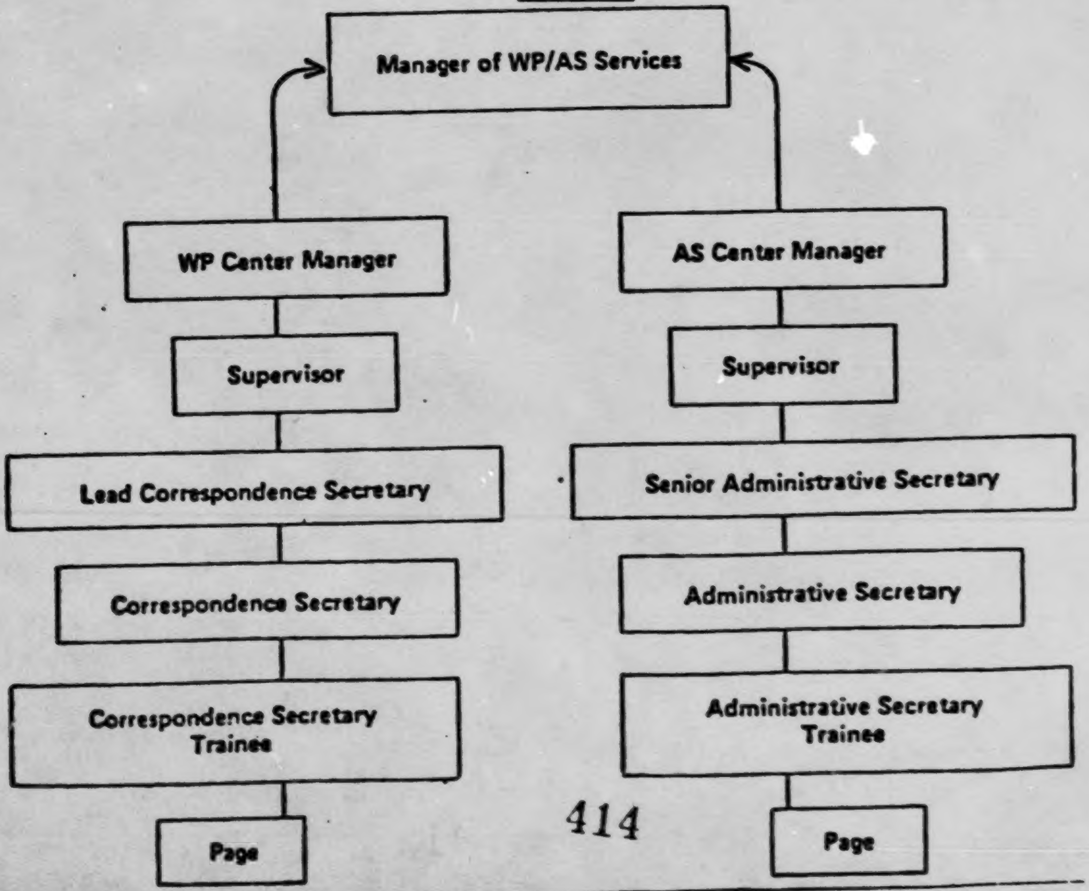
*BASED ON DATAMATION
1980 SALARY SURVEY

## 2. Word Processing Career Paths

There are more opportunities for challenging jobs within word processing than there are people ready to fill them. As computer, graphics and communications technology become part of word processing, new positions for management as well as production are developing rapidly.

The following organization charts offer different approaches to titles and organization of "straight" word processing centers. You will notice that these companies have created parallel career paths between word processing and secretarial staff.

Figure 4


Manager of WP/AS Services
WP Center Manager
Supervisor
Lead Correspondence Secretary
Correspondence Secretary
Correspondence Secretary Trainee
Page
AS Center Manager
Supervisor
Senior Administrative Secretary
Administrative Secretary
Administrative Secretary Trainee
Page

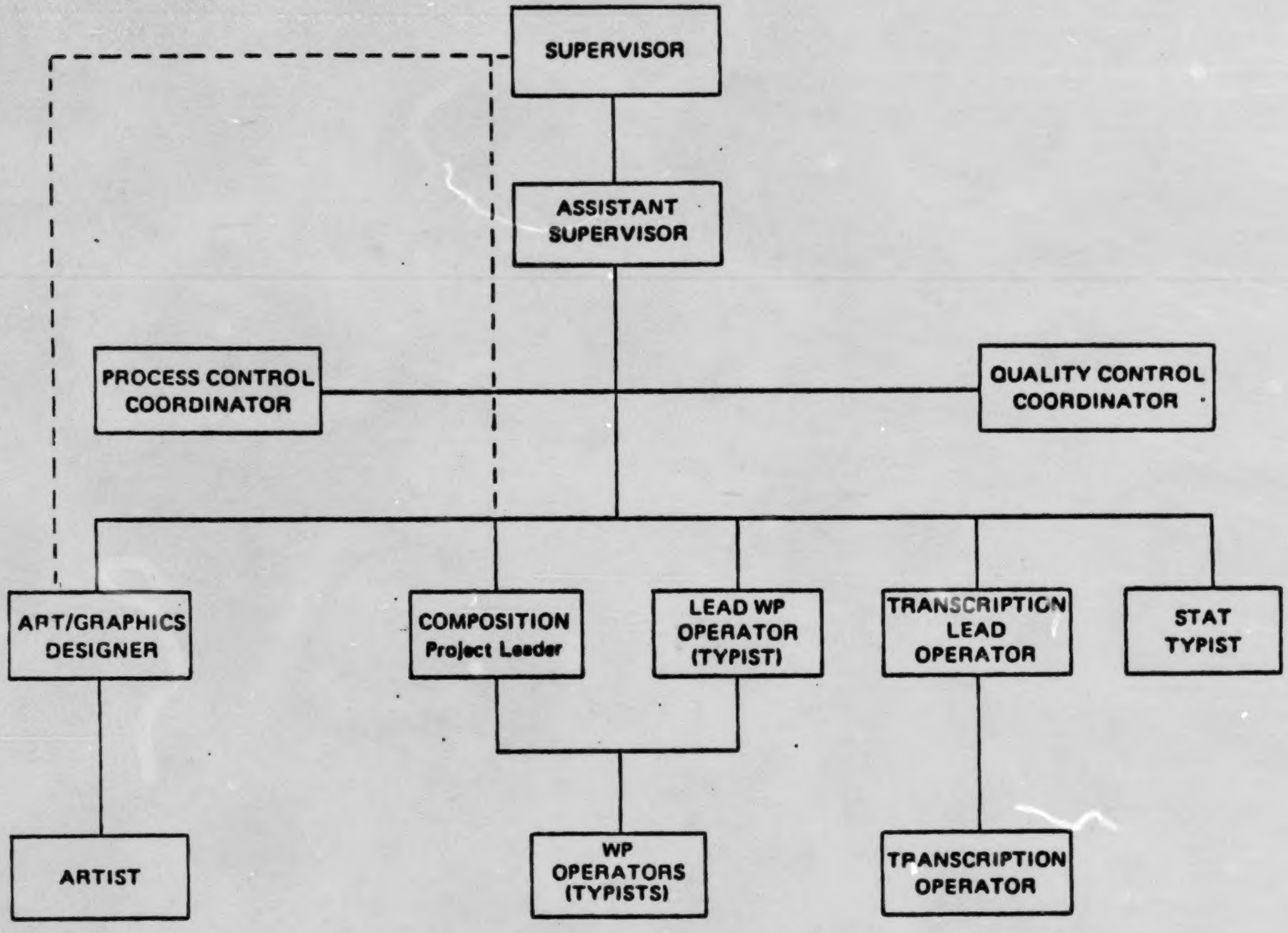
## CAREER PATHS IN INFORMATION PROCESSING

In word processing centers with typesetting and dictation equipment, depending on the size of the operation, there is a need for trainers, graphics specialists, compositors and quality control coordinators. The following organization charts (Figures 5, 6, and 7) illustrate the diversity of positions in larger installations.

A list of positions within organizations using word processing and jobs with other companies other than users includes vendor/supplies and support, education, personnel placement and consulting.

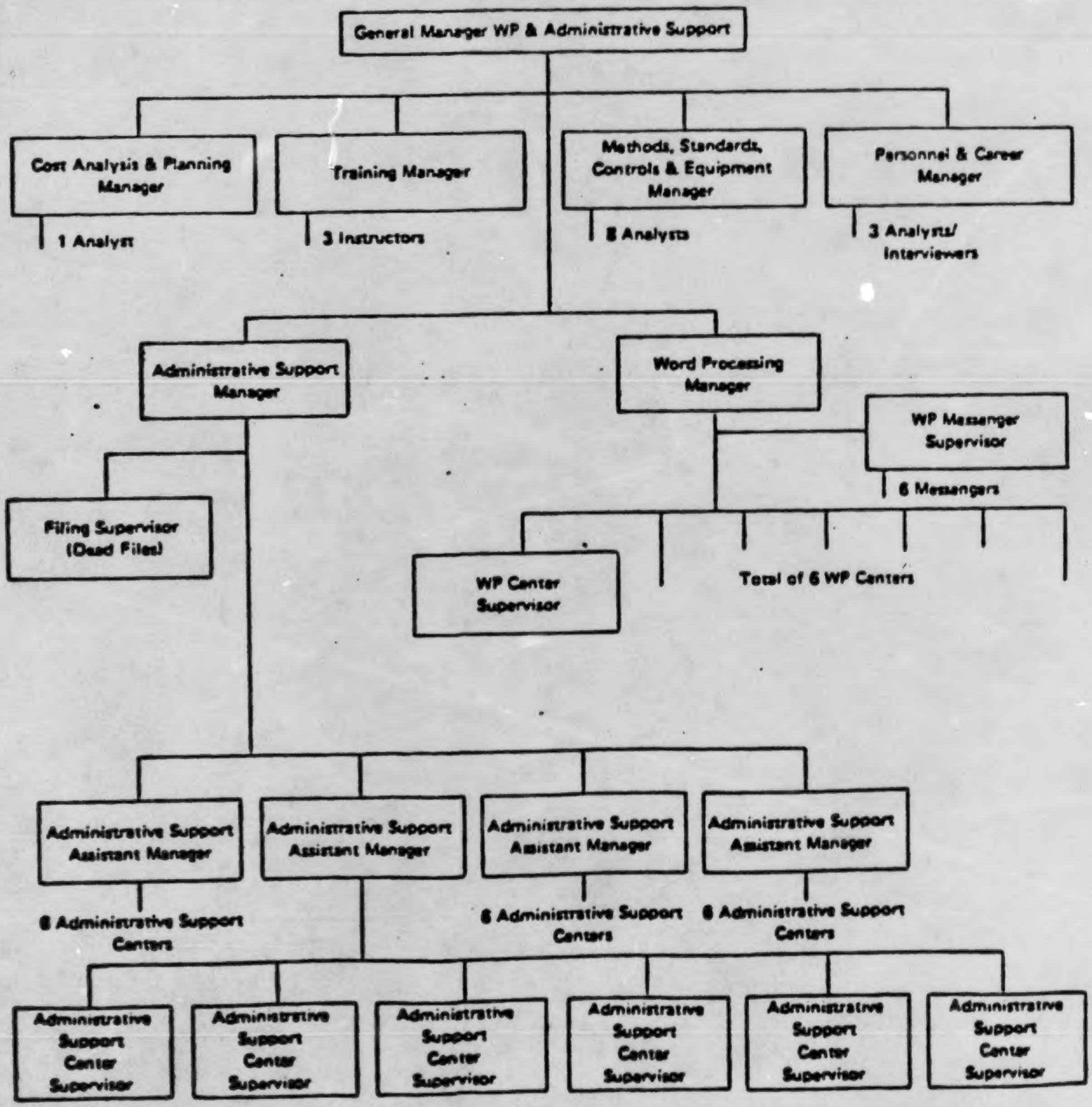
CAREER PATHS IN INFORMATION PROCESSING

Figure 5


SUPERVISOR
ASSISTANT SUPERVISOR
PROCESS CONTROL COORDINATOR
QUALITY CONTROL COORDINATOR
ART/GRAPHICS DESIGNER
COMPOSITION Project Leader
LEAD WP OPERATOR (TYPIST)
TRANSCRIPTION LEAD OPERATOR
STAT TYPIST
ARTIST
WP OPERATORS (TYPISTS)
TRANSCRIPTION OPERATOR

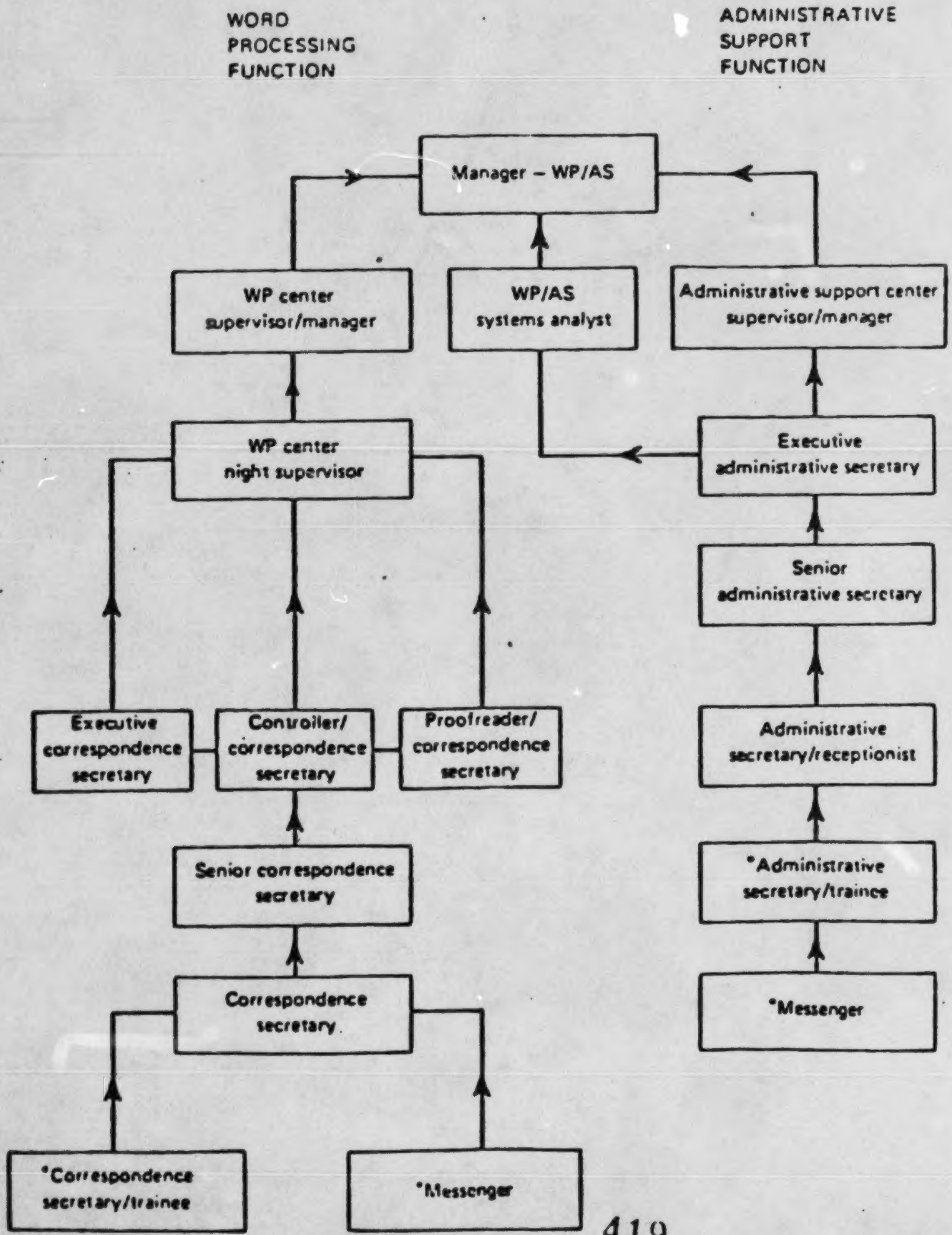
CAREER PATHS IN INFORMATION PROCESSING

Figure 6


General Manager WP & Administrative Support
Cost Analysis & Planning Manager
1 Analyst
Training Manager
3 Instructors
Methods, Standards, Controls & Equipment Manager
8 Analysts
Personnel & Career Manager
3 Analysts/ Interviewers
Administrative Support Manager
Word Processing Manager
WP Messenger Supervisor
6 Messengers
Filing Supervisor (Dead Files)
WP Center Supervisor
Total of 6 WP Centers
Administrative Support Assistant Manager
Administrative Support Assistant Manager
Administrative Support Assistant Manager
Administrative Support Assistant Manager
6 Administrative Support Centers
6 Administrative Support Centers
6 Administrative Support Centers
Administrative Support Center Supervisor
Administrative Support Center Supervisor
Administrative Support Center Supervisor
Administrative Support Center Supervisor
Administrative Support Center Supervisor
Administrative Support Center Supervisor

CAREER PATHS IN INFORMATION PROCESSING

Figure 7


WORD PROCESSING FUNCTION
ADMINISTRATIVE SUPPORT FUNCTION
Manager – WP/AS
WP center supervisor/manager
WP/AS systems analyst
Administrative support center supervisor/manager
WP center night supervisor
Executive administrative secretary
Senior administrative secretary
Executive correspondence secretary
Controller/ correspondence secretary
Proofreader/ correspondence secretary
Administrative secretary/receptionist
Senior correspondence secretary
*Administrative secretary/trainee
Correspondence secretary
*Messenger
*Correspondence secretary/trainee
*Messenger

## CAREER PATHS IN INFORMATION PROCESSING

Figure 8

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### OPPORTUNITIES INSIDE WP

QUALITY CONTROL - PROOFREADER
EDITOR
CENTER COORDINATOR
PROJECT LIAISON/COORDINATOR
APPLICATIONS SPECIALIST
DOCUMENT ANALYST
OFFICE SYSTEMS COORDINATOR
TECHNICAL ADVISOR/TRAINEE
INTERNAL ANALYST
WP EQUIPMENT ANALYST
SYSTEMS SOFTWARE SPECIALIST
DICTATION TRAINER
TRANSCRIPTION SUPERVISOR/LEAD

EQUIPMENT MAINTENANCE
LIBRARIAN/ARCHIVIST
PRODUCTION CONTROL COORDINATOR
PHOTOCOMPOSITION SPECIALIST
GRAPHICS DESIGN SPECIALIST
TECHNICAL INTERFACE SPECIALIST
VENDOR MARKET SUPPORT
EQUIPMENT & SUPPLIES SALES
WP SERVICE BUREAUS
WP PERSONNEL PLACEMENT
WP TRAINING
TEACHING IN SCHOOL SYSTEM
CONSULTING

---

New positions are cropping up to meet demands created by the equipment itself; for example, archivist. There are also opportunities for internal experts in companies where pilot automated office projects are being planned and implemented. The challenge to these companies is to recognize the importance of liaison staff who have technical expertise but who more importantly have a thorough understanding of how user departments actually work. Word processing staff, administrative and senior secretaries can be very effective in this role. We'll call this person an Office Support Coordinator whose major responsibilities might include:

Figure 9

---

TRAINING ON EQUIPMENT

DEVELOP TRAINING & REFERENCE MATERIALS

WORK WITH SECRETARIAL & CLERICAL STAFF
IN ADJUSTING SUPPORT FUNCTION & PROCEDURES

SET UP NEW APPLICATIONS & DOCUMENT PROCEDURES

PERFORM SYSTEM MAINTENANCE; TROUBLE SHOOT OPERATORS' PROBLEMS

EVALUATE THE RESULTS OF IMPLEMENTING NEW SYSTEMS
MAKE RECOMMENDATIONS FOR IMPROVEMENTS

ACT AS INTERFACE BETWEEN OFFICE STAFF & TECHNICAL ANALYSTS

EVALUATE EQUIPMENT & TEST NEW OFFICE SYSTEMS

RESEARCH OFFICE TECHNOLOGY

---

# CAREER PATHS IN INFORMATION PROCESSING

We are frequently asked by ambitious word processing specialists and managers if their backgrounds will open the door to careers in other fields. An effective word processing supervisor has talents that are important in many job areas. To name a few:

- familiarity with technology; comfortable in a technical environment
- evaluating equipment
- scheduling
- working with users
- working with vendors
- problem solving
- perparing budgets
- staffing
- managing people

Here are a few ideas for word processing supervisors who are interested in expanding their experience to other fields:

Figure 10

### USE WP AS A SPRINGBOARD

METHODS & PROCEDURES ANALYST

SCHEDULER

OFFICE MANAGER

OFFICE SERVICES MANAGER

SECRETARIAL SERVICES MANAGER

PERSONNEL & TRAINING

PARALEGAL

PURCHASING

ADMINISTRATIVE SUPPORT MANAGER

PLACEMENT

RECORDS MANAGER

REPRO MANAGER

GRAPHICS

COMMUNICATIONS SPECIALIST

PROJECT STAFF

DATA PROCESSING

## 3. Other Functional Area Career Paths

### Career Paths Within Function Form

The form used in the next section includes the following information: (Figure 11)

Ⓐ Function: The functional name of the organization within the Information Processing environment.

Ⓑ Description: A description of the functional area.

Ⓒ Career Paths Within Function: Peer used and understood names of jobs within the function. The names are ordered by responsibility. The manager/supervisor is at the top, the trainee position is at the bottom, the intermediate positions are between.

Ⓓ Entry: The normal career path entry level for this functional group.

Ⓔ Salary: The salary ranges for this group gleaned from the leading technical publications.

Figure 11

Ⓐ

## FUNCTION

SYSTEMS ANALYSIS

Ⓑ

APPLIES DATA PROCESSING CONCEPTS TO USER PROBLEMS, DESIGNS EFFECTIVE AND EFFICIENT DP SOLUTIONS

## CAREER PATHS WITHIN FUNCTION

Ⓒ

MANAGER OF SYSTEMS ANALYSIS

LEAD SYSTEMS ANALYST

SENIOR SYSTEMS ANALYST

SYSTEMS ANALYST

SYSTEM ANALYST TRAINEE

Ⓓ

## ENTRY

ENTRY IS USUALLY FROM PROGRAMMING

Ⓔ

## SALARY RANGE

$15 - 32,000

# CAREER PATHS IN INFORMATION PROCESSING

## Data Processing Careers

Functional areas grouped under Data Processing are:

Systems analysis

Application Programming

Systems Programming

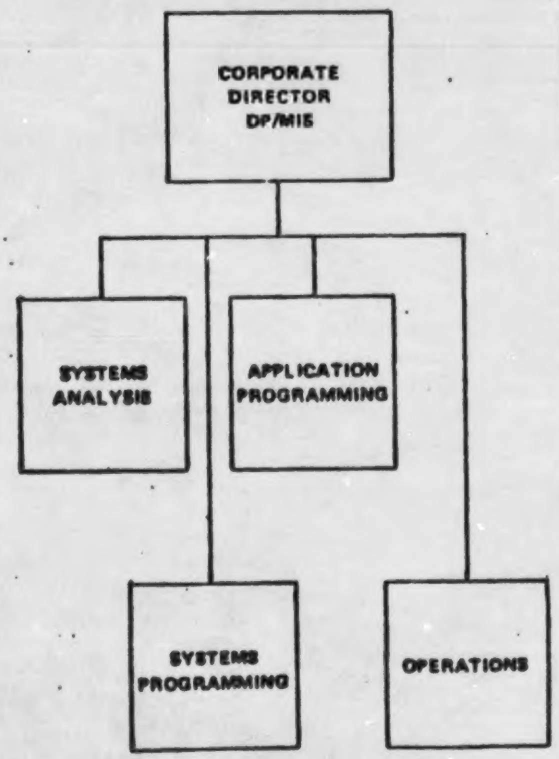
Operations which includes

Data Entry

Production Control

Operations (Machine)

Organizationally, they usually report to a Corporate Director of MIS or Data Processing Manager (Figure 12).


CORPORATE DIRECTOR DP/MIS
SYSTEMS ANALYSIS
APPLICATION PROGRAMMING
SYSTEMS PROGRAMMING
OPERATIONS

CAREER PATHS IN INFORMATION PROCESSING

## FUNCTION

OPERATIONS - DATA ENTRY

RESPONSIBLE FOR DATA ENTRY AND VERIFICATION

## CAREER PATHS WITHIN FUNCTION

DATA ENTRY SUPERVISOR

LEAD DATA ENTRY OPERATOR

DATA ENTRY OPERATOR

TRAINEE OPERATOR

## ENTRY

HIGH SCHOOL, COURSE IN KEY ENTRY

## SALARY RANGE

$8 - 23,000

## FUNCTION

OPERATIONS - COMPUTER OPERATIONS

RESPONSIBLE FOR OPERATION OF COMPUTER SYSTEMS

## CAREER PATHS WITHIN FUNCTION

MANAGER OF COMPUTER OPERATIONS

LEAD COMPUTER OPERATOR

SENIOR COMPUTER OPERATOR

COMPUTER OPERATOR

COMPUTER OPERATOR TRAINEE

MAGNETIC MEDIA LIBRARIAN

POST PROCESSING CLERK

## ENTRY

HIGH SCHOOL, COURSE IN COMPUTERS

## SALARY RANGE

$9 - 23,000

## FUNCTION

OPERATIONS - PRODUCTION CONTROL

RESPONSIBLE FOR JOB PROCESSING AND COORDINATION OF INPUT AND OUTPUT

## CAREER PATHS WITHIN FUNCTION

SUPERVISOR PRODUCTION CONTROL

LEAD PRODUCTION CONTROL CLERK

PRODUCTION CONTROL CLERK

PRODUCTION CONTROL TRAINEE

## ENTRY

HIGH SCHOOL, DATA ENTRY, OPERATIONS

## SALARY RANGE

$8 - 23,000

# FUNCTION

APPLICATION PROGRAMMING

RESPONSIBLE FOR DEVELOPMENT OF SOFTWARE PROGRAMS, INCLUDES DOCUMENTATION

# CAREER PATHS WITHIN FUNCTION

MANAGER OF PROGRAMMING

LEAD PROGRAMMER

SENIOR PROGRAMMER

PROGRAMMER

PROGRAMMER TRAINEE

PROGRAMMING TEAM LIBRARIAN

# ENTRY

TRAINING PROGRAM, FORMAL EDUCATION, OPERATIONS

# SALARY RANGE

$10 - 32,000

## FUNCTION

SYSTEMS ANALYSIS

APPLIES DATA PROCESSING CONCEPTS TO USER PROBLEMS,
DESIGNS EFFECTIVE AND EFFICIENT DP SOLUTIONS

## CAREER PATHS WITHIN FUNCTION

MANAGER OF SYSTEMS ANALYSIS
LEAD SYSTEMS ANALYST
SENIOR SYSTEMS ANALYST
SYSTEMS ANALYST
SYSTEM ANALYST TRAINEE

## ENTRY

ENTRY IS USUALLY FROM PROGRAMMING

## SALARY RANGE

$15 - 32,000

## FUNCTION

SYSTEMS PROGRAMMING

RESPONSIBLE FOR THE SUPPORT OF THE OPERATING SYSTEMS
(HARDWARE ORIENTATION)

## CAREER PATHS WITHIN FUNCTION

MANAGER OF SYSTEMS PROGRAMMING
LEAD SYSTEMS PROGRAMMER
SENIOR SYSTEMS PROGRAMMER
SYSTEMS PROGRAMMER
SYSTEMS PROGRAMMER TRAINEE

PROGRAM LIBRARIAN

## ENTRY

APPLICATION PROGRAMMER, OPERATIONS

## SALARY RANGE

$10 - 45,000

## Other Career Paths

The other functional areas are not as clearly defined organizationally as Data Processing. They often report to the Corporate Director of MIS, or an Office Manager, or any number of Senior Corporate Management positions. Some of the functional areas are embedded in other groups. As technology develops in these areas, they will become more clearly defined: such as Reprographics and Business Security.

## FUNCTION

DATA BASE ADMINISTRATION

RESPONSIBLE FOR THE COMPANIES' COMPUTERIZED INFORMATION REQUIREMENTS, COORDINATES DATA COLLECTION AND STORAGE NEEDS

## CAREER PATHS WITHIN FUNCTION

437

MANAGER OF DATA BASE ADMINISTRATION

DATA BASE ADMINISTRATION

## ENTRY

PROGRAMMING, SYSTEM ANALYSIS

## SALARY RANGE

$24 - 35,000

## FUNCTION

DATA COMMUNICATIONS/TELECOMMUNICATIONS

RESPONSIBLE FOR DESIGN OF DATA COMMUNICATIONS NETWORK, TRAFFIC ANALYSIS AND DATA COMMUNICATION SOFTWARE

## CAREER PATHS WITHIN FUNCTION

TELECOMMUNICATIONS MANAGER

COMMUNICATION SPECIALIST

DATA COMMUNICATIONS ANALYST

TECHNICAL CONTROL SPECIALIST

## ENTRY

OPERATIONS, SYSTEMS PROGRAMMING

## SALARY RANGE

$17 - 31,000

## FUNCTION

REPROGRAPHICS

THE REPRODUCTION OF AN ORIGINAL DOCUMENT USING COMPUTER TECHNOLOGY

## CAREER PATHS WITHIN FUNCTION

CAREER PATH EMBEDDED IN OTHER FUNCTIONS

DATA PROCESSING - PRINTERS, TERMINALS

WORD PROCESSING - MEDIA, PHOTO COMPOSITION

MICROGRAPHICS - MICROFICHE/FILM

ADMINISTRATIVE - PHOTOCOPY, FAX

TELECOMMUNICATION - COMMUNICATING WITH ABOVE

## ENTRY

## SALARY RANGE

## FUNCTION

MICROGRAPHICS

RESPONSIBLE FOR THE FILMING, DUPLICATING AND PROCESSING OF MICROFILM (BOTH COM AND STAND ALONE)

## CAREER PATHS WITHIN FUNCTION

OPERATION MANAGER

SHIFT SUPERVISOR

SENIOR EQUIPMENT OPERATOR

JUNIOR EQUIPMENT OPERATOR

MICROGRAPHIC PROCESSING/LAB TECHNICIAN

MICROGRAPHIC PRODUCTION/DUPLICATING TECHNICIAN

## ENTRY

HIGH SCHOOL

## SALARY RANGE

$9 - 27,000

## FUNCTION

BUSINESS SECURITY

PROTECTS DATA, FACILITIES AND EMPLOYEES - USING COMPUTER TECHNOLOGY

## CAREER PATHS WITHIN FUNCTION

CAREER PATH EMBEDDED IN OTHER FUNCTIONS

DATA PROCESSING - DATA PROTECTION, EMPLOYEE VERIFICATION

ADMINISTRATIVE - VIDEO SCANNERS, BADGE VERIFICATION

## ENTRY

## SALARY RANGE

## FUNCTION

USER INTERFACE

COORDINATES BETWEEN DATA PROCESSING AND THE END USER. REPRESENTS BOTH GROUPS EFFECTIVELY.

## CAREER PATHS WITHIN FUNCTION

STEERING COMMITTEES

USER SYSTEM ANALYSTS

USER MANAGEMENT

USER LIASON REPORTING TO DP

SERVICES COORDINATOR

## ENTRY

KNOWLEDGE OF DATA PROCESSING AND USER DEPARTMENT

## SALARY RANGE

NOT APPLICABLE

## 4. The Planned Career Path

The Information Processing Career Path (Figure 13) represents on one piece of paper the careers in each functional areas. The right hand column is the salary range that the job classification is paid on a national average. Your career can generally progress up one or even two levels, laterally along any of the functional levels and even down one level while still showing a strong career growth. Joan Martin (Ficticious name) is a classic example of a career path that could lead to a Director of Information Processing (Figure 14).

- Joan started her career at the City Water and Power company as a Key Punch trainee. She was promoted to operator after a 6 month peroid. She worked as a operator for approximately 1 year. She then asked for a transfer to Word Processing.
- Organizationally, Joan had to take a step backwards but the opportunity to learn the technology was worth it to her. There she promoted quickly and over a three year period, became an operator, proofreader and second shift supervisor. Realizing her boss was never going to be promoted or quit, she began looking for other opportunities in the company. She took a Programmer Aptitude Test and passed it with a top score, and was placed in the Programmer training program.

# INFORMATION PROCESSING CAREER PATH

| WORD PROCESSING | SYSTEMS ANALYSIS | APPLICATION PROGRAMMING | SYSTEMS PROGRAMMING | COMPUTER OPERATIONS | TELE-COMMUNICATION | MICRO-GRAPHICS | PRODUCTION CONTROL | DATA ENTRY | DATA BASE ADMINISTRATOR | AVERAGE SALARY RANGES |
|---|---|---|---|---|---|---|---|---|---|---|
| | MANAGER SYSTEM ANALYSIS | | OPERATING SYSTEMS MANAGER | | MANAGER TELE-COMMUNICATION | | | | MANAGER | 28 - 30 |
| | LEAD SYSTEMS | MANAGER PROGRAMMING | LEAD SYSTEMS PROGRAMMER | | | MANAGER MICRO-GRAPHICS | | | DATA BASE ADMINISTRATOR | 26 - 27 |
| | SENIOR SYSTEMS | | SENIOR SYSTEMS PROGRAMMER | MANAGER COMPUTER OPERATIONS | ANALYST TELE-COMMUNICATION | | | | | 24 - 26 |
| | SYSTEM ANALYST | LEAD PROGRAMMER | PROGRAMMER | MANAGER OF OPERATIONS | | | | | | 20 - 23 |
| WP MANAGER | TRAINEE ANALYST | SENIOR PROGRAMMER | TRAINEE SYSTEMS | | TECH CONTROL SPECIALIST | | | | | 18 - 20 |
| | | PROGRAMMER | | LEAD OPERATOR | | SHIFT SUPERVISOR | SUPERVISOR PRODUCTION CONTROL | | | 16 - 18 |
| SUPERVISOR<br>TRAINEE | | TRAINEE | | SENIOR OPERATOR | | SENIOR EQUIPMENT OPERATOR | | SUPERVISOR DATA ENTRY | | 14 - 16 |
| SPECIALIST<br>PHOTOSETTING | | | PROGRAM LIBRARIAN | OPERATOR<br>TRAINEE | | MICROGRAPHIC TECHNICIAN | LEAD PRODUCTION CONTROL | LEAD DATA ENTRY | | 12 - 14 |
| PROOFREADER<br>OPERATOR | | TEAM LIBRARIAN | | LIBRARIAN<br>PROC. POST CLERK | | PRODUCTION TECHNICIAN | CLERK<br>TRAINEE | OPERATOR<br>TRAINEE | | 10 - 12 |
| WP TRAINEE | | | | | | | | | | 8 - 10 |

J3

# INFORMATION PROCESSING CAREER PATH

⑬

| WORD PROCESSING | SYSTEMS ANALYSIS | APPLICATION PROGRAMMING | SYSTEMS PROGRAMMING | COMPUTER OPERATIONS | TELE-COMMUNICATION | MICRO-GRAPHICS | PRODUCTION CONTROL | DATA ENTRY | DATA BASE ADMINISTRATOR | AVERAGE SALARY RANGES |
|---|---|---|---|---|---|---|---|---|---|---|
| | MANAGER SYSTEM ANALYSIS | | OPERATING SYSTEMS MANAGER | | ⑫ MANAGER TELE-COMMUNICATION | | | | MANAGER | 28 - 30 |
| | LEAD SYSTEMS | MANAGER PROGRAMMING | LEAD SYSTEMS PROGRAMMER | | | MANAGER MICRO-GRAPHICS | | | DATA BASE ADMINISTRATOR | 26 - 27 |
| | SENIOR SYSTEMS | | SENIOR SYSTEMS PROGRAMMER | MANAGER COMPUTER OPERATIONS | ⑪ ANALYST TELE-COMMUNICATION | | | | | 24 - 25 |
| | SYSTEM ANALYST | LEAD PROGRAMMER | PROGRAMMER | MANAGER OF OPERATIONS | | | | | | 20 - 23 |
| WP MANAGER | TRAINEE ANALYST | SENIOR PROGRAMMER | ⑨ TRAINEE SYSTEMS | | ⑩ TECH CONTROL SPECIALIST | | | | | 18 - 20 |
| | | ⑧ PROGRAMMER | | LEAD OPERATOR | | SHIFT SUPERVISOR | SUPERVISOR PRODUCTION CONTROL | | | 16 - 18 |
| ⑥ SUPERVISOR<br>TRAINEE | | ⑦ TRAINEE | | SENIOR OPERATOR | | SENIOR EQUIPMENT OPERATOR | | SUPERVISOR DATA ENTRY | | 14 - 16 |
| SPECIALIST<br>PHOTOSETTING | | | PROGRAM LIBRARIAN | OPERATOR<br>TRAINEE | | MICROGRAPHIC TECHNICIAN | LEAD PRODUCTION CONTROL | LEAD DATA ENTRY | | 12 - 14 |
| ⑤ PROOFREADER<br>④ OPERATOR | | TEAM LIBRARIAN | | LIBRARIAN<br>PROC. POST CLERK | | PRODUCTION TECHNICIAN | CLERK<br>TRAINEE | ② OPERATOR,<br>① TRAINEE | | 10 - 12 |
| ③ WP TRAINEE | | | | | | | | | | 8 - 10 |

- Training took over one year. It was challenging but it became apparent that she could make more money if she changed jobs. For a 20% increase, she left the Water and Power company and went to work for Widget. At Widget she quickly learned several new applications but realized her interest was in Systems Programming. There were no openings in her company for a Systems Programmer, but her old company offered her a job as Systems Programmer trainee if she would return.
- When Joan returned to Water and Power she quickly discovered it was a mistake. It is difficult to go back to an old company. Joan stayed for one year but never really adjusted to the changed environment. Once again she left the company, this time for an entering level Telecommunication Specialist position for Beckmans.
- Joan's years in Word Processing helped her get this position because of her exposure to data communications. At Beckmans she has spent the last five years in several different jobs. As Manager of the Department she is promoting the reorganization of several functional areas under the Information Processing umbrellas. She sees duplication of resources at every level. She has met with the President of the company many times on the subject. The reorganization is anticipated for first quarter 1981 and Joan is expected to be the Director.

# CAREER PATHS IN INFORMATION PROCESSING

There are several observations to be made from our example.

1. Plan your own career. Your company can rarely help in the planning. Functionally, areas report to different managers and even different profit centers.
2. Be prepared to leave a secure position if you must to promote your career. One of the reasons Data Processing salaries are so high is the mobility Data Processing professionals have. It is not uncommon to change companies for a 20% increase like Joan did. It is rare that a company can give you a 20% raise.
3. Use the expertise and knowledge from one functional area to parlay into another. Telecommunications and successful user interfacing are two of the positive attributes of Word Processing professionals, which lend themselves to many of the other areas.
4. Don't hesitate to ask for training, or transfers within your own company. You'd be surprised how often the answer is YES!

# EMERGING TRENDS IN WORD PROCESSING EDUCATION

Kathleen Wagoner, Ph.D.
Professor
Ball State University

*Human Resources*
*Thursday Morning*
*June 26, 1980*

## EMERGING TRENDS IN WORD PROCESSING EDUCATION

During the late spring of 1979 the International Word Processing Association mailed a questionnaire to all educators known to be on various word processing lists, such as the Educators' Advisory Council mailing list and Word Processing Systems' annual listing of schools teaching word processing. A follow-up mailing was made in late August with the research tally being closed in October 1979. A total of 176 replies was received. Of these, 15 indicated that they were not teaching word processing. Of the 161 indicating that they were teaching word processing, 50 were four-year college/university level; 88 were post secondary (72 community college, 11 vo-tech, and 5 private business college); 20 were secondary and 3 were categorized as other because they have adult education or short-term continuing education programs. The numbers indicate where word processing is being taught at the present time--primarily at the post-secondary and collegiate levels.

It should be recognized that those responding are probably indicative of the most innovative and advanced in the nation and may not be representative of all teachers of word processing across the whole country. On the other hand, these schools that are pioneering in the teaching of word processing are leaders; the others will become followers. Several interesting trends in word processing education are apparent.

Many of the respondents indicated that they are teaching word processing concepts in various business courses. For some, that is the extent of their teaching in word processing; for many others, that is in addition to word processing courses or a word processing curriculum which they have implemented. Many of the latter are recognizing the importance of assisting all students to learn what word processing is and its likely effect on their future and are, therefore, incorporating something about it into a number of courses.

In June 1980, IWP published the first edition of The Reference Guide to Word Processing Education. This publication lists all the schools responding to the survey that indicated they were teaching word processing. The list is coded to indicate whether the schools indicated they were teaching concepts in various business classes, specific word processing courses, a full complement of courses or curriculum, certificate or degree programs, etc. Also included are lists of titles of courses into which word processing concepts have been introduced, a selection of representative course descriptions, and a representative sample of various word processing curricula.

Because the question about word processing laboratories was indented when it should not have been, a number of respondents did not answer the question. However, it is significant to note that 91 respondents indicated that they do have a word processing laboratory, while only 7 responded that they are teaching word processing without laboratory facilities. This indicates that the majority have been able to obtain funding for some equipment acquisitions.

## EMERGING TRENDS IN WORD PROCESSING EDUCATION

Responses concerning the origin and development of a word processing program indicate that the primary reasons for starting such programs in the schools have been that industry was seeking trained personnel, the schools could place the students who had the training, such a program was needed to keep the curriculum updated, and the school had teachers interested in word processing as a field. The manner in which word processing was introduced into the curriculum varied. At the secondary or high school level most of the schools responding indicated that they had introduced the teaching of word processing as a unit in some other type of business class; only 2 indicated they introduced word processing with a Word Processing course. At the post-secondary level, however, only 11 began their teaching of word processing as a unit in another business class, 46 began with an introductory class, and 26 introduced word processing to their schools with a series of classes. At the college/university level the respondents indicated that they introduced word processing as a unit in other classes or in an introductory class. These variations would appear to be due to the greater amount of funding available for vocational training at the post-secondary level.

This is further borne out by the responses from the colleges/universities and secondary schools which indicated that financing the program was their most serious administrative problem in establishing their word processing programs. The respondents from post-secondary schools, on the other hand, indicated that their most serious problem was keeping up with the state of the art. Other problems mentioned by the respondents included selling the program to the administration, getting teachers interested and willing to teach, and selecting equipment.

The respondents from all levels of educational institutions indicated that their most serious instructional problems have been developing curriculum; scheduling students on the equipment; keeping updated in such a fast-changing field; and evaluating student work in class, setting standards, establishing grades, etc. Because this is a new field, there are no methods courses to provide background for teachers, and teachers are having to develop their own programs.

A majority of the respondents indicated that their primary objective in offering word processing instruction was the vocational preparation of students. Other objectives were to provide acquaintanceship in equipment operations and allied procedures and to provide general knowledge about word processing. Most of the respondents that offered adult evening school programs indicated that they offer the same program to both day and evening students. At some of these schools, there are likely to be fewer courses available for adults and/or adults are provided more advanced work and/or more hands-on training.

Most of the teachers obtained their word processing background by attending manufacturers' schools, studying on their own, and attending Word Processing Seminars for business personnel. Teachers recently entering the field also indicated they had received preparation for teaching word processing by attending a Word Processing Teachers Workshop during the summer.

Most of the schools do not have any specific selection policy for admitting students into the word processing courses. The greatest response by far was that no selection is done. When a prerequisite for entry into the Word Processing program is used, it is most frequently a typing prerequisite. The typing requirement, however, ranged from 35 to 60 words per minute with the most frequent response as 40 words per minute. When grade requirements are used as prerequisites, they range from passing or D to B, with C as the most frequent response. Other courses cited by respondents as required were English and Office Procedures. When asked about personal characteristics or qualities of the successful word processing students the respondents indicated that such students must be machine oriented. Another very important characteristic is persistence in problem solving; others include systematic work habits, attention to details, and being adaptable to change.

The manner in which Word Processing programs were financed varied considerably. The majority received funding as a result of the Vocational Education Act; however, there was no consistent pattern about the percentages of funds from local or state sources. Some schools received funding from their local school boards, and a couple received some special foundation grants. Over 80 percent of the respondents indicated that their original equipment was justified for instructional purposes only, and slightly less than 20 percent indicated justifying their equipment for both administrative and instructional purposes. Most of the equipment was purchased new from the vendors. Although most of the equipment was originally justified for instructional purposes only, a considerable number indicated that they now perform some administrative work. On the other hand, other respondents wrote in comments concerning their fear of exploitation of their students and that the performance of administrative work should be avoided.

Respondents to the survey were requested to submit sample course descriptions, curricula, and/or flyers describing their programs. An examination of the material submitted by a large number of the schools revealed some developing trends. These emerging trends may be summarized as follows:

1. The four-year college and university programs may be indentified as being of two types--those which provide instruction on an operational level and those which give emphasis to the integrative aspects of word processing and its role in office information systems.

   Those schools providing operational training are more likely to have two-year programs as well as four-year curricula. There is an apparent trend in the four-year colleges and universities to a change in department names and emphasis from secretarial science to office systems administration and/or administrative systems and services or other similar titles.

2. A number of schools are introducing new courses designed to meet the need for improved English skills. Titles given to such courses are Business English, Pretranscription Skills and Introduction to

Transcription. Course descriptions for all of these are similar and the title appears to be whatever the school has found necessary within its own political system.

3. A large number of schools have specific courses in machine transcription within their word processing curricula. A considerable number of schools are either adding specific courses on Effective Dictation Procedures or are including instruction on dictation within some type of a communications course.

4. There is considerable evidence that word processing education is going beyond teaching word processing as a secretarial system. The courses most frequently taught are those in Word Processing Concepts and Word Processing Management. That the teaching of concepts is becoming important is further borne out by the publication of several textbooks with the term "concepts" in the title.

5. Another observable trend upon which a number of respondents remarked is the increase in office education enrollments created by the addition of word processing classes. Several respondents commented on doubling and tripling their enrollments in just one or two years. Phyllis Heath, City Supervisor of Business Education in Milwaukee, shared the following information:

> "The first year there were 36 students enrolled in Word Processing I offered at Hamilton High School; the second year 45 students were enrolled; the third year there were 96 students enrolled in Word Processing 1 and 14 in Word Processing II; a co-op program which has continued to have about 15 a year enrolled. This past year 125 to 130 were enrolled in Word Processing I; advanced registration for next year indicates somewhere between 145 to 150. When both the total school and other business education department enrollments have been dropping, the word processing classes have been experiencing a steady growth."

Visits with teachers have confirmed that many times by teaching word processing basic office education continues to be taught--but in a new, different way which is exciting and challenging to both students and teachers.

6. Another observable trend is the manner in which the training on equipment is expanding. Those schools that have been teaching word processing the longest are often planning their equipment training so that students may progress from one level to another. Frequently

the orientation to equipment begins on electronic or memory typewriters, moves to blind stand-alone equipment, and then progresses to visual display systems, either of a stand alone nature or as part of a shared logic system. The course content also is planned for progression from one level to another. At the beginning level, basic manipulations are taught with emphasis on recording, playback, and editing. The next level involves the handling of external storage (magnetic cards, tapes, and diskettes), more advanced text processing involving the moving of sentences and paragraphs and a variety of industry applications. Records processing is frequently introduced next, together with some use of arithmetic capabilities or verification. At the advanced levels, telecommunications and interfacing with the computer, sometimes with the use of computer languages such as Basic or ATMS, are taught. In California, several of the community colleges are communicating with each other as a regular part of their programs.

7. Most Word Processing programs have a mix of equipment, ranging from electronic and/or blind systems to more advanced CRT systems. It is apparent that a number of schools are keeping their original equipment and expanding their offerings to students. Several respondents commented on the transfer of learning from one piece of equipment to another.

8. There appears to be a trend to develop a list of basic competencies or checklists of tasks to be performed on all types of equipment which would serve as evidence of students' capabilities. In that regard, it is interesting to note that Word Processing Specialists is one of 14 occupations included in Project VoComp (Development of Competency Measures for Vocational Skill Areas), a three-year project sponsored by the U.S. Office of Education and being carried out by the American Institutes for Research.

9. A final trend is related to that being recognized as a need within the industry--file maintenance. Several advanced programs are building in experiences for students to store and retrieve information in a variety of ways on diskette, hard disk, or computer. That is, learning to store information so that other people can find it. This does not mean maintaining a specific name and address file under the title "people."

Word processing is concerned with teaching many of the old basics, such as the file rules, in new and different ways. It is obvious that those teachers responding to the survey are excited about word processing and proud of what they are accomplishing.

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